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IN THIS ISSUE

Physiologic and Mechanical Aspect of the Implant Technique and its Application to Practical Cases 342

Practical Preventive Dentistry: The Use of Mouth Protectors for Contact Sports 348

Some Diagnostic Points in Roentgenographic Interpretation of Lower Third Molars 351

Relief of Pain 356

The Editor's Page 357

Lower Implant for an Immediate Partial Denture. 358

Congenous Obesity and Dental Anomaly—Report of a Case 360

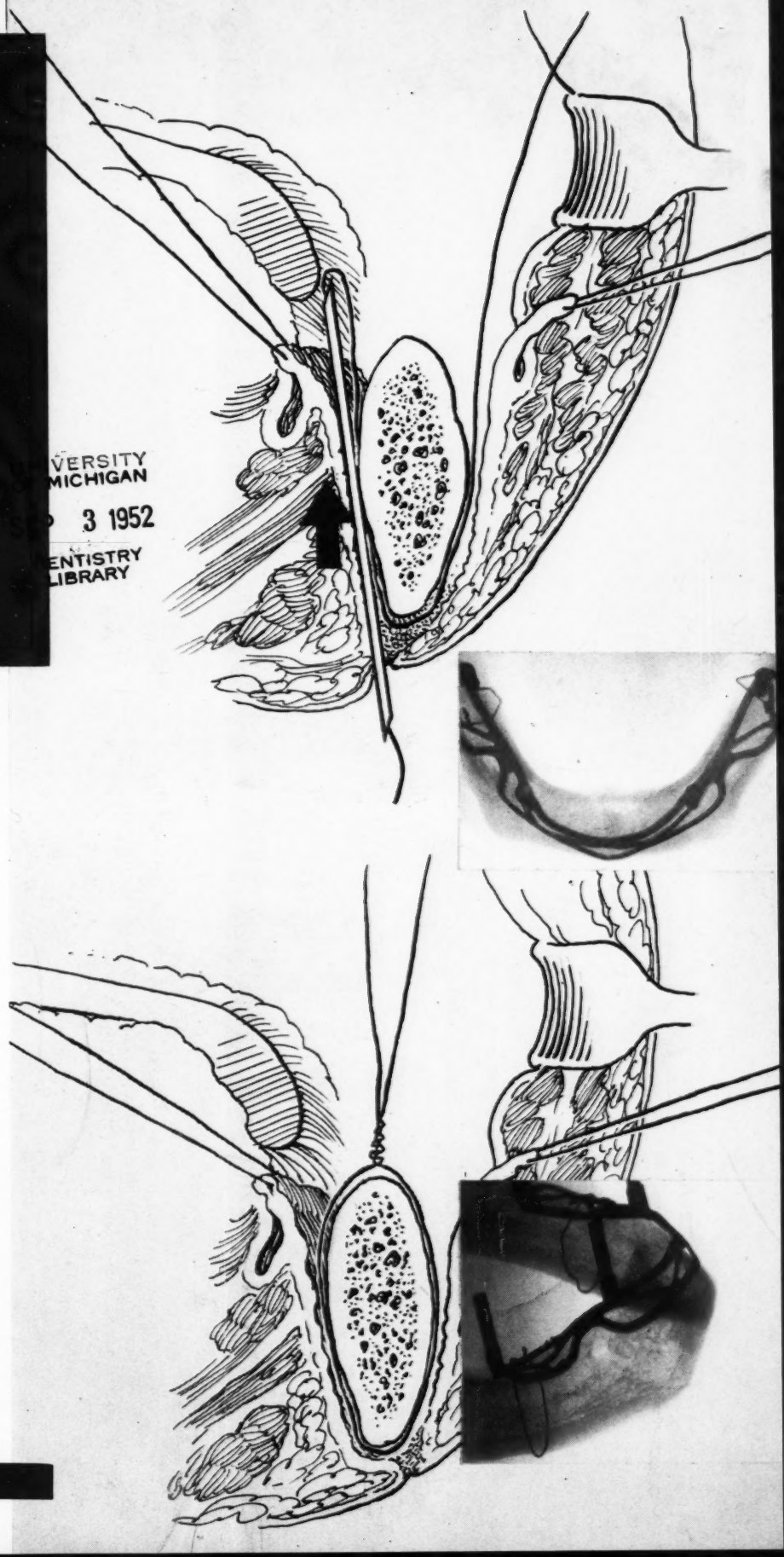
Clinical and Laboratory Suggestions 362

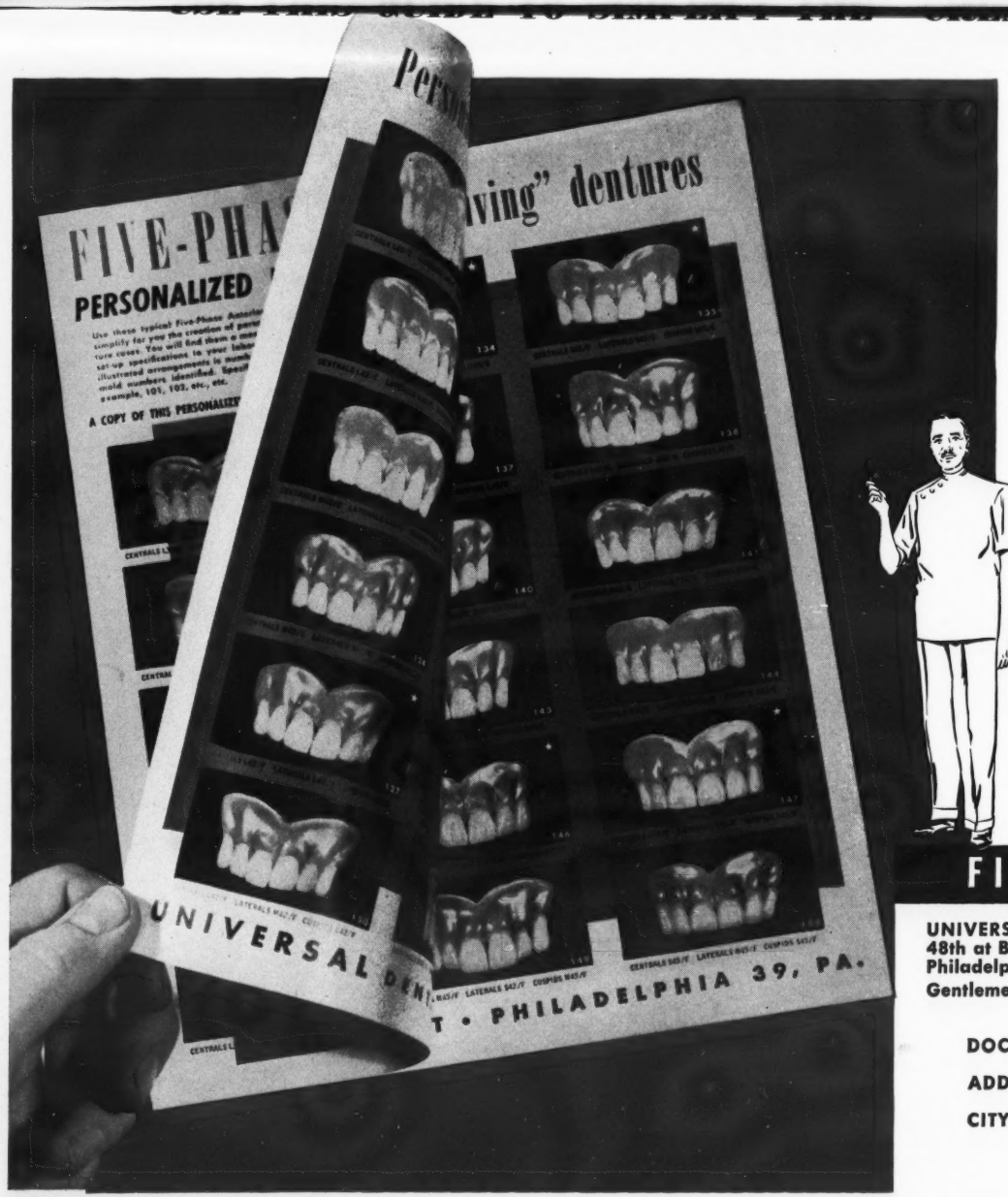
Medicine and the Biologic Sciences 364

Intra-Angles 368

(*Complete Table of Contents appears on page* 341)

Cover illustration—Berman article page 342





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AUGUST 1952

The Physiologic and Mechanical Aspect of the Implant Technique and its Application to Practical Cases
Nicholas Berman, D.D.S., M.D. 342

Practical Preventive Dentistry: The Use of Mouth Protectors for Contact Sports
Jack F. Cathcart, D.D.S. 348

Some Diagnostic Points in Roentgenographic Interpretation of Lower Third Molars
Herman Brody, D.M.D. 351

Relief of Pain (An Abstract) 356

The Editor's Page ..... 357 Contra-Angles 368

The Upper Implant for an Immediate Partial Denture
William I. Ogus, D.D.S. 358

Exogenous Obesity and Dental Anomaly—Report of a Case
Louis H. Guernsey, D.D.S. 360

Clinical and Laboratory Suggestions 362
1. Burnishing an Interproximal Amalgam. 2. Keeping Teeth Dry for Fluoride Treatment. 3. A Nonconductor for Use in Pulp Testing. 4. Porcelain Jacket Crown Preparation. 5. Spot Grinding Occlusion on Dentures. 6. Impression for Remaking a Removable Partial Abutment.

Medicine and the Biologic Sciences 364

About Our CONTRIBUTORS

NICHOLAS BERMAN, M.D. (Medical School, Prague, 1934), D.D.S. (University of Kansas City, School of Dentistry, 1948) presents an illustrated article, THE PHYSIOLOGIC AND MECHANICAL ASPECT OF THE IMPLANT TECHNIQUE AND ITS APPLICATION TO PRACTICAL CASES, which describes a method of wiring to ensure stabilization of the casting.

JACK F. CATHCART, D.D.S. (University of California, College of Dentistry, 1926) a frequent contributor to DIGEST, presents an article on preventive dentistry which describes an appliance designed for general use by those engaged in strenuous sports, especially youths of high school age who are playing football for the first time.

HERMAN BRODY, D.M.D. (Harvard University, Dental School, 1917) who has been a contributor to the dental literature since 1920, publishes for the first time in DIGEST this month, presenting an abundantly illustrated article, SOME DIAGNOSTIC POINTS IN ROENTGENOGRAPHIC INTERPRETATION OF LOWER THIRD MOLARS.

WILLIAM I. OGUS, D.D.S. (George Washington University, 1917) has been a contributor to DIGEST since 1941. Doctor Ogus has been interested in the possibilities of the implant technique since its inception and in this issue he describes a technique for an upper implant for immediate partial denture insertion.

LOUIS H. GUERNSEY, D.D.S. (The Thomas W. Evans Dental Institute, University of Pennsylvania, 1947) writes that his general practice includes almost every known kind of dentistry although his main interest is oral surgery. Doctor Guernsey's article, EXOGENOUS OBESITY AND DENTAL ANOMALY, is his first in DIGEST.

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The Physiologic and Mechanical Aspect of the IMPLANT TECHNIQUE *and its Application to Practical Cases*

NICHOLAS BERMAN, D.D.S., M.D., Seattle

DIGEST

Widespread interest in the possibilities of the implant technique and judicious experimentation continue. The author of this article adds to the accumulated knowledge in the subject and points out that intelligent patient selection has much to do with favorable results and also that despite present gratifying success, before adoption as an accepted and permanent technique, time will be required to provide evidence of sustained mechanical bone adaptation under the implant. Step-by-step directions are given for a simplified method of wiring to ensure stabilization of the casting in exact position.

Development of Implant Technique

Since Goldberg and Gershkoff[1,2] published their first report the implant technique has been modified and developed further by Ogus,[3] Berman,[4] and Lew.[5] The results of continued experimentation are highly encouraging; however, it is not yet possible for positive designation of the implant technique as an accepted form of restoration.

Patient Selection Important—It has been shown clinically that by intelligent selection of the patient the surgical procedure can be extremely successful. Patients who had never had a useful denture in the past, now enjoy a prosthesis with excellent function.

Adaptability of Bone Important Factor—Despite gratifying results, histologic-pathologic examination is needed for evidence of possible changes of the bone under the pressure of the Vitallium casting over a period of time. Controlled x-ray examinations have not shown bony change of inflammatory nature, or bone resorption. However, it is not sufficient to consider only the biologic adaptability of the tissue to the metallic implant, it is also imperative to consider the mechanical adaptability of the bone under the implant. Without successful adaptability of bone, present results will be impermanent like some tissue-bearing dentures.

Problem of Resorption—The question arises: Is it to be expected that the bone will resorb under the implant as it does under a gingival tissue-bearing denture?

It is the author's opinion that the possibility of resorption of the bony tissue under an implant is much less than under a gingival tissue-bearing prosthesis.

Physiology and Biology of Bone

Mechanical strain is essential for the growth and preservation of bone; the lack of this stimulating effect results in atrophy. The strain may be applied in the form of direct weight pressure, as in the long bones of the lower extremities, or in the form of muscle forces. In the case of the alveolar process the muscle forces play the dominant part.

Structure Varies According to Function—The muscles attached to the bone exert either a pressure or a traction effect. The architectural structure of bone varies according to the function of the muscles attached to it and is therefore dominated mostly by mechanical influences. Atrophy of bone will result, not only in absence of muscle activity, but also when the quality or direction of forces acting upon a certain part of bone deviates from the normal. Increase in quantity of stress leads to resorption also.

Forms of Strain in the Oral Cavity—Applying the general observation concerning structure and function to the oral cavity it is found that (1) the alveolar process, because of its delicate spongy architecture, seems to be more sensitive to this variation of muscle forces than the body of the mandible or the other bones of the skeleton, and (2) the muscles attached to the alveolar process act upon them mostly in the form of tension; even the effect of a tooth in the alveolar socket is one of tension and not of pressure.

Factors Contributing to Resorption Under Tissue-bearing Dentures—A further application of the general statement regarding bone makes it apparent that the following factors seem to contribute to resorption of the alveolar process under the tissue-bearing denture:

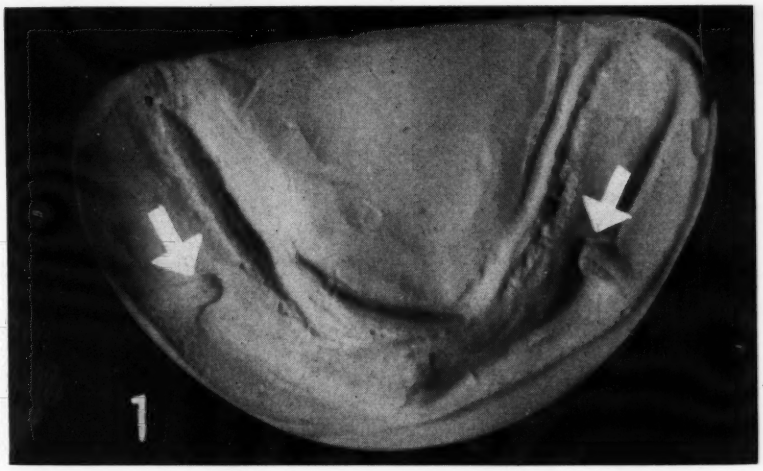
[1]Goldberg, Norman I., and Gershkoff, Aaron: The Implant Lower Denture, DENTAL DIGEST **55**:490-494 (Nov.) 1949.
[2]Goldberg, Norman I., and Gershkoff, Aaron: Further Report on the Full Lower Implant Denture, DENTAL DIGEST **56**:478-483 (Nov.) 1950.
[3]Ogus, William I.: Research Report on Implantation of Metals, DENTAL DIGEST **57**:58-63 (Feb.) 1951.
[4]Berman, Nicholas: An Implant Technique for Full Lower Denture, DENTAL DIGEST **57**:438-443 (Oct.) 1951.
[5]Lew, Isaih: A Simplified Upper Technique Using Immediate Prosthesis, DENTAL DIGEST **58**:10-15 (Jan.) 1952.

(1) The denture lying over the mucous membrane deprives the underlying muscles of their function.

(2) The denture exerts a pressure exceeding the tolerance of the alveolar process in quantity, direction, and quality. This pressure seems to be a contributing factor to the cause of the resorption of the alveolar process.

(3) The denture compresses the underlying blood vessels that supply the periosteum.

(4) The prosthesis has a pressure-bearing function on the periosteum. Despite the fact that the function of the periosteum in the process of new bone formation is controversial, experiments seem to show that an intact periosteum is a favorable factor for new bone formation.



1. ***Model shows the string-like form of the mental nerve (arrow) exposed directly over the superior surface of the mandible.***

Comparison of Prostheses

The fundamental difference between the tissue-bearing denture and a prosthesis lying over an implant is that the latter rests entirely and exclusively on the metal implant which is perfectly adapted to the bone on which it rests subperiosteally.

Distribution of Masticatory Force—The total masticatory force will therefore be transmitted to the entire mandible through the rigid frame of the metal casting without interfering with the gingival tissue. It is obvious that neither the periosteum nor the blood vessels in the gingival tissue will be altered by wearing the superstructure as they would be under a tissue-bearing denture.

Importance of Perfect Balance—The necessity of a perfectly balanced superstructure to avoid high spots or traumatic occlusion which would prevent occlusal stress from being evenly distributed over the entire mandible is emphasized.

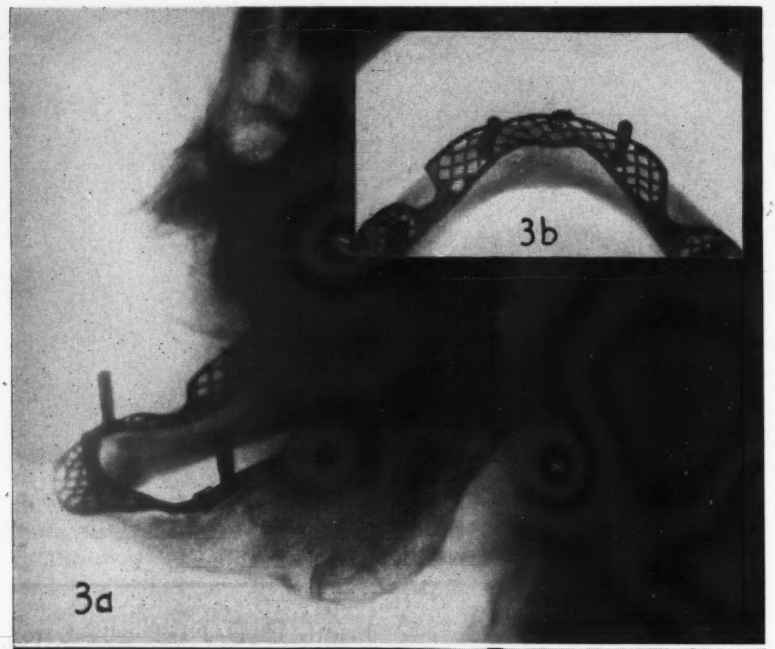
Compact Bone Resistant to Pressure—The attempt to construct an implant is made *after the alveolar process has totally resorbed* and it is possible to deal with the compact bony structure which is more resistant to pressure than was the alveolar process.

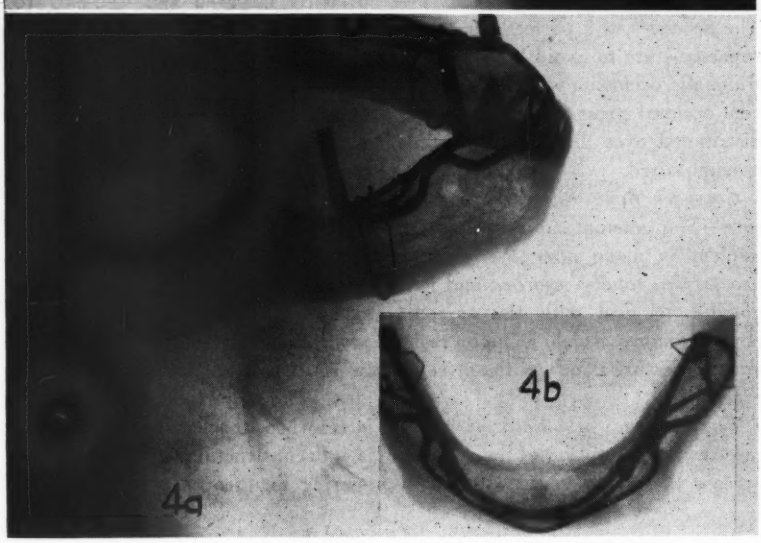
Termination of Resorption—In cases where resorption of the alveolar process has taken place (despite a properly adjusted and well-balanced prosthesis) it is noted that resorption stops when it reaches the more compactly built bony structure of the body of the mandible.

Area Involved—The point of termination of resorption is generally around the mental foramen; its horizontal plane is level with the floor of the mouth.

Factor in Patient Selection—The extent of resorption of the alveolar process is an important consideration in selecting the patient for an implant. The more the alveolar process is resorbed, the less possibility there is of constructing a useful tissue-bearing denture; but the resorption

2A. ***The exposed mental nerve (arrow) is shown directly over the superior surface of the mandible. Note the string-like arrangement of the exposed mental nerve, left side.*** **2B.** ***The same on the right side.***





3A. *X-ray shows the implant held in place by the transosseous wire at each side of the molar areas and incisor areas. Note the extreme thinness of the mandible in front, due to resorption.*

3B. *Occlusal view of the same. Note how the casting is notched out around the exposed mental nerve.*

4A. *X-ray shows the implant being held in exact position over the flat mandible by circumferential tantulum wires.*

4B. *Occlusal view of Figure 4a. Compare the design of the casting with the one shown in Figure 3.*

of the alveolar process provides a more compact and more pressure-resistant bony base for the implant.

Preparation of the Mandible—Remnants of the alveolar process, especially in the form of sharp ridges, are subject to rapid resorption under the implant pressure and should be removed before the impression is taken. Suitable preparation of the mandible for bearing the implant includes exposing the mandible for taking an impression, as outlined previously.[4]

Contraindications for an Implant

Only in an academic sense can a line be drawn between the indications and contraindications for an implant. A firm steady base is a prerequisite and for this reason the following conditions, which make permanency of the compact base doubtful, are contraindications:

(1) Presence of an alveolar process (unless it is to be removed).

(2) Disturbance in calcium metabolism (osteoporosis).

(3) Chronic blood disease.

(4) Endocrine gland disturbance (thyroid, pituitary, parathyroid, adrenal gland).

(5) Circulatory deficiency.

Practical Considerations

The majority of patients who are in need of the implant denture are those with extreme resorption of the alveolar process because there is no other solution for construction of a useful prosthesis. The resorption often advances to the level of the mental nerve, exposing the nerve on the superior surface of the mandible.

Pressure Causes Pain—The nerve is subject to a direct pressure by the tissue-bearing prosthesis with consequent steady pain and discomfort while wearing the prosthesis even if only for esthetic purposes. This fact is sometimes overlooked.

With slight pressure along the mental nerve the foramen and the string-like arrangement of the nerve coming from the foramen can be felt (Figs. 1, 2a, and 2b). Intensified pressure on the nerve induces pain, but pressure applied in front of or in back of the nerve does not.

Surgical Approach—Basically, the surgical approach in these cases is the same as described previously; namely, the impression over the exposed bone supplies an exact reproduction of the bone and the position of the mental nerve but the surgical

procedure differs in some ways.

The Incision Line: The incision line should be made with full consideration for the location of the mental nerve and placed, as nearly as possible, lingually over the bicuspid area rather than in the usual midline.

Securing Natural Retention: The mandible represents a flat board-like horseshoe where neither the lingual nor the buccal flange of the metal casting can be made because lingually the resorption reaches the mylohyoid line with a sharp undercut beneath it.

Fortunately, the middle of the mandible almost always shows a deeper contour than the periphery; by taking advantage of this contour some natural retention against the lateral masticatory force is secured, provided the castings follow the contours exactly.

Examination of Bone Necessary—Before the incision is made in a patient with a flat thin mandible who complains of a constant pain with a denture, a careful examination of the bone under the mucosa should be made. Besides the mental nerve, the inferior alveolar nerve can also be exposed directly on the superior surface of the mandible (Fig. 10).[7] An occlusal x-ray can be helpful in confirming clinical examination which consists of careful finger pressure along the body of the mandible.

Healing Sometimes Delayed—The mucosa over the incisor area is extremely firm and in many cases there is a delayed healing of the soft tissues over the metal implant in this area.[6] To prevent this, the anatomic condition of the area should be taken into consideration and the casting constructed accordingly.

Avoid Exposure: Resorption generally reaches the level of the genial tubercle where fibers of the powerful genioglossus muscles insert. Avoid exposing this area, because by moving the tongue, the suture over the incision area will tear off before the healing process takes place.

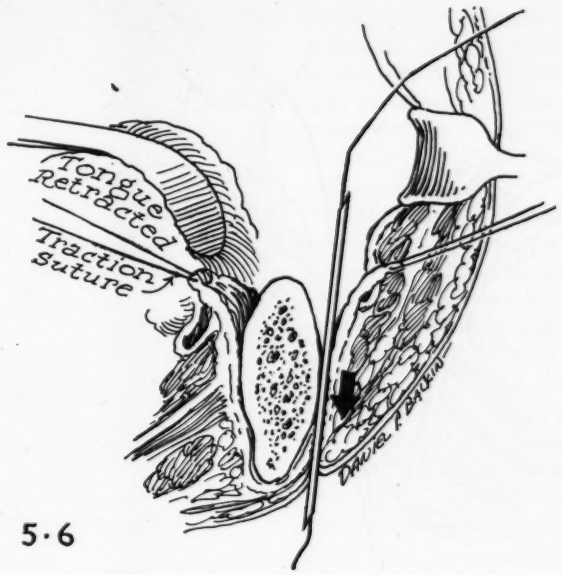
Method to Ensure Healing: The following measures are recommended to encourage smooth healing:

(1) After taking the impression, leave a small space between the wound lips and in suturing do not approximate them tightly. In this way granulation tissue will fill in the space between the lip wound, creating more tissue than there was originally and providing enough tissue to cover the casting at the time of the second operation when the metal casting is inserted. The author uses this open space in every case where the tissue is extremely firm over the bone.

(2) The casting should be placed mostly on the labial half of the incisor area.

(3) Use 00 Dermalon retention sutures inserted deeply, ½ centimeter from the wound lips through buttonholes.

(4) Use a pressure bandage for two to four days to prevent the patient from moving his lower lip. This will prevent excessive swelling.



5 and 6. ***The periosteum is detached buccally and lingually from the mandible. The double-tapered needle is placed between the periosteum and the buccal side of the mandible and pushed out through the skin. Tantalum wire Number .020 inch is inserted through the needle. The arrow indicates the direction the needle will follow.***

To Ensure Permanent Stability of Casting

The metal implant is notched around the exposed mental nerve (Figs. 3b and 4b). It is important to secure the permanent stability of the casting in this exact position until the periosteum grows through; otherwise the implant could be moved on the flat board-like mandible, pinching and endangering the exposed nerve. There are two different methods for preventing this: (A) Transosseous wiring, or (B) circumferential wiring.

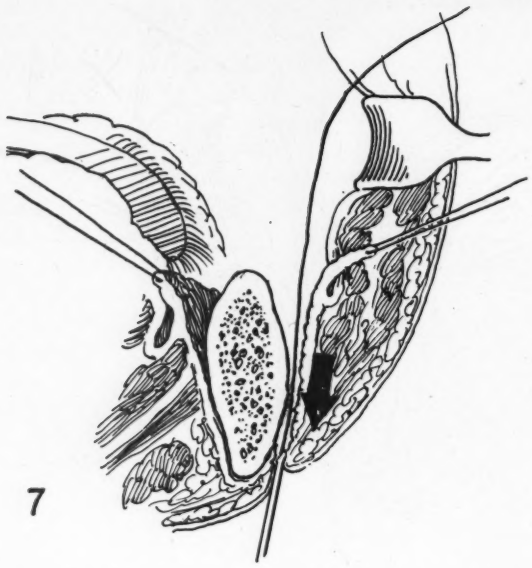
Case Histories

Case One—The patient, a woman fifty-five years of age, was unable to use a lower prosthesis because of extreme resorption of the mandible.

Examination: Pain was induced by pressure around the mental foramen area, and when speaking with the lower prosthesis in place. The surgically exposed mandible revealed an exposure of the mental nerve on both sides, situated on the superior surface of the bone (Fig. 2). The mandible was entirely flat.

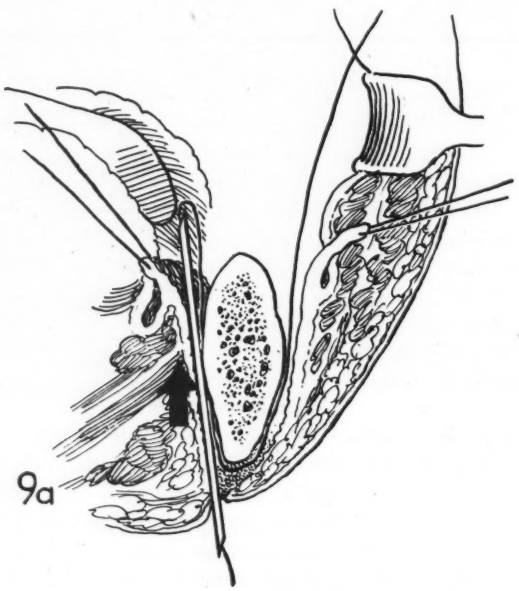
Treatment Procedure: 1. A casting was prepared, contoured to the special anatomic condition, and secured to the bone by transosseous wires on

[6]Personal Correspondence.
[7]Courtesy Leroy Beveridge, D.D.S., Wichita, Kansas.

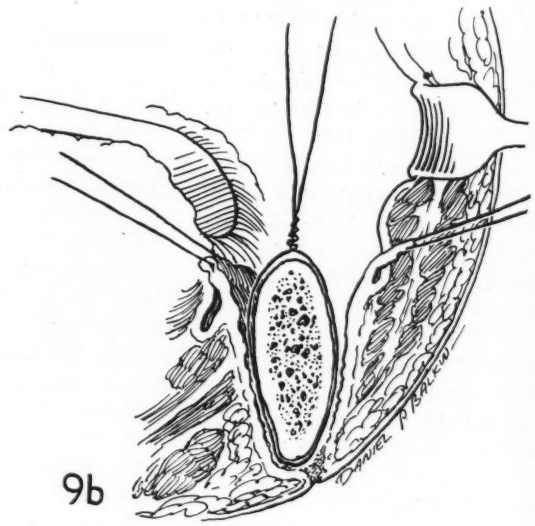


7. *The needle at the buccal lower border of the mandible. The arrow indicates the direction the needle will follow.*

8. *The needle at the lingual lower border of the mandible. The arrow indicates the direction the needle will follow.*



9A. *The needle with one end in the oral cavity after it has been pushed between the periosteum and the lingual side of the mandible.*



9B. *Wire twisted.*

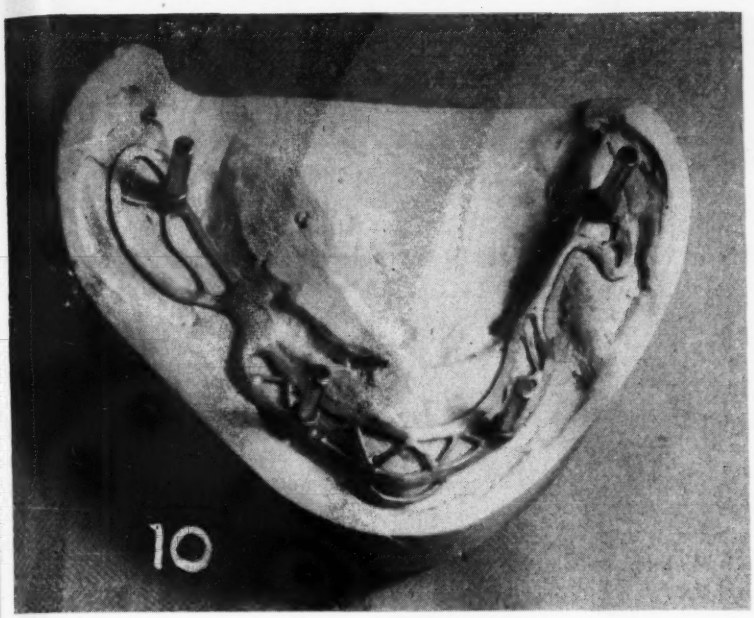
both molar areas and at the incisor area (Figs. 3a and 3b).

2. Holes were drilled from occlusal to buccal in the molar area and from occlusal to labial in the incisor area; tantalum wire Number 020 inch was inserted, holding the implant in place.

3. The holes should be so placed as to avoid injury to the inferior alveolar nerve. The wire should be twisted lightly to avoid bone resorption.

Case Two—The patient had had three sets of lower dentures but could not wear them because of extensive resorption of the mandible.

Examination: Pressure around the mental foramen area caused intensive



10. ***Model and implant. Note the directly exposed inferior alveolar nerve at the left first molar area and the branch-off of the left mental nerve. Direct exposure of the right mental nerve. The implant is notched out around the nerves.***

pain. Figure 1 shows the casting model with the directly exposed mental nerve.

Procedure: Circumferential tantalum wiring was used to secure the flat metal implant in exact position with notches around the exposed mental nerve (Figs. 4a and 4b). The author prefers using circumferential wire rather than transosseous wiring because of the following advantages:

(1) With no drilling into the bone there is less trauma; circumferential wiring can therefore be used in an extremely thin mandible where the transosseous wiring is contraindicated because of danger of injury to the inferior mandibular nerve.

(2) There is less danger of pressure atrophy. The counterpoint is at the lower border of the mandible which is thick and compact, while with transosseous wiring the counterpoint is placed in the internal bony part.

(3) Simplicity.

Method of Circumferential Wiring

The simplified method of circumferential wiring used by the author does not require any external (through the skin) exposure with its consequent scar formations.

After the mandible has been totally exposed and the casting fitted to the bone, the approximate placing of the wiring anterior to the posts can be determined. The following steps are taken:

Step 1—A 3-inch long, double-tapered, 20-gauge needle is placed between the periosteum and the buccal side of the mandible. With one hand the operator firmly holds the skin, previously prepared with soap and tincture of iodine; with the other hand he pushes the needle out through the skin. The needle should be held in close contact with the bone (Fig. 5).

Step 2—Tantalum wire is introduced into the needle. one end of which is in the oral cavity; the other end is outside (Fig. 6).

Step 3—The external end is grasped with a hemostat and pulled downward until the opposite end of the needle reaches the buccal lower border of the mandible (Fig. 7).

Step 4—From this point the needle end is pushed to the lingual lower border of the mandible (Fig. 9a). During this operation the needle should be in constant contact with the lower border of the mandible.

Step 5—Under direct vision the needle is pushed between the periosteum and the lingual surface of the mandible.

Step 6—As it is twisted over the implant (Fig. 9b) the tantalum wire should be without kinks and long enough to allow easy manipulation of the needle.

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Practical Preventive Dentistry:

The Use of MOUTH PROTECTORS *for Contact Sports*

JACK F. CATHCART, D.D.S., Berkeley, California

DIGEST

Our national school systems, through their physical educational programs, are advocating all types of contact sports: boxing, baseball, hockey, basketball, and football. Basketball and football are at present in the lead in popularity.

Football is a vigorous game and its players are subject to many injuries. In a survey of three states it was discovered that over fifty per cent of the injuries to high school players were in the region of the mouth, lips, teeth, and jaws. This article describes a mouth protector designed by the author for the prevention of injury in this particular area for the player engaged in football or other sports involving bodily contact.

Hazards of Game

Football is essentially a game of bodily contact between the players; for this reason there are bound to be numerous injuries to those who engage in the game. It is in high school, where the boys are learning to play the game, that the injury factor begins to be evident. Many more boys engage in the play of football in high school than in junior college or college.

Recovery Rapid in Youth—High school boys in their early teens are just beginning to grow into young manhood; they are awkward and not yet able to coordinate their muscular strength. They are, therefore, subject to innumerable injuries. Except from dental injuries, because of their youth they recover rapidly. A sprained joint or a broken bone will heal, but a broken or lost tooth requires a dental restoration.

Protective Equipment Supplied—To prevent bodily injury to the boys while playing football, protective equipment has been devised in the form of helmets, shoulder and hip pads, rib guards, shin protectors, and other appliances which the high school usually furnishes the players. The cost of this equipment to the school will run from $90 to $130 per player, depending upon the type or quality of the articles that the schools can afford to provide.

Many Injuries in Facial Area—A joint survey in Michigan, Wisconsin, and Minnesota disclosed the fact that 52 per cent of the injuries to high school football players were in the region of the mouth, lips, teeth, or jaws. For protection or prevention of

1. ***Coach Jack Danilovich, Contra Costa Junior College, Richmond, California, demonstrating to some of his football players why the head should be kept up, and the spine held straight to avoid injury. The use of a mouth protector eliminates ducking the head and going in blindly because of fear of dental injury. Contra Costa Junior College now furnishes players mouth protectors.***

injury of this area, little or nothing had been done.

Reduction of Injury Rate a Problem

Reducing this high rate of dental injury in high school football players presents a challenge to the dental profession. The solution to the problem would be the development of an adequate mouth protector of the same type used by professional boxers.

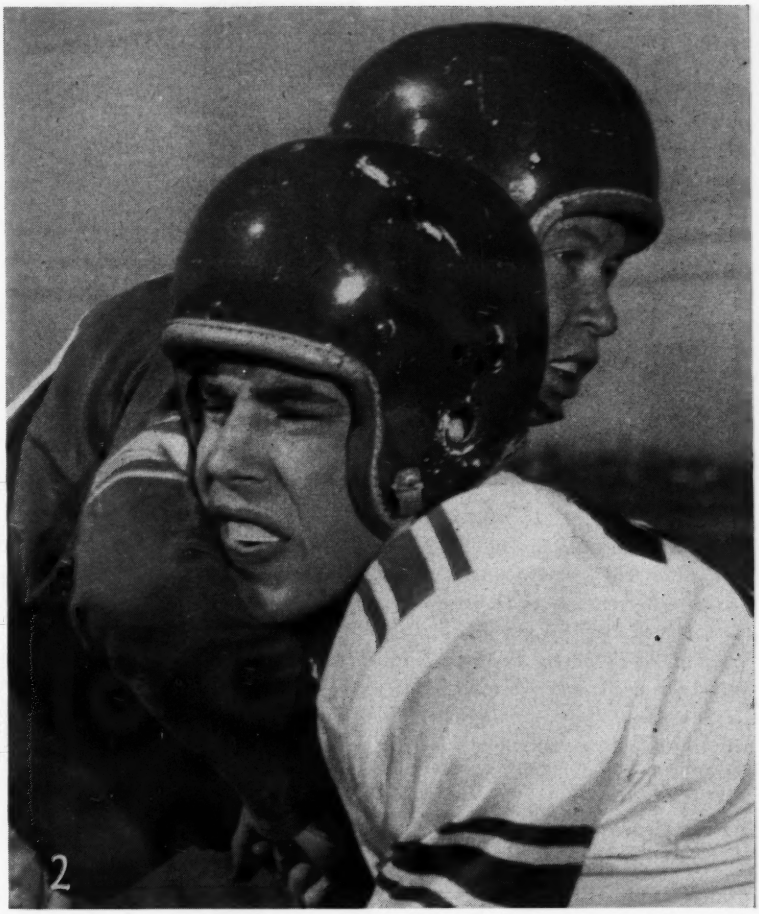
Mouth Guard Must Fit Properly—Unfortunately, few high school boys can afford to have dentists take impressions of their mouths and design and process mouth protectors for them; and an improperly fitting mouth guard is almost as inadequate as none at all, even if the boy can be forced to wear it.

Mouth Breathing Necessary in Violent Sports—It is known that not enough air can get deep into the lungs of a person engaged in violent exercise through the nose alone. Some mouth breathing, therefore, is absolutely necessary. This cannot be accomplished by a person wearing a mouth protector that has to be held in the mouth by clenched jaws. The moment the wearer has to open his mouth to get essential air into his lungs, out pops the mouth protector. Evidence of this fact is the common sight of a mouth guard in the air at any fight program or on boxing contests viewed on television.

Formerly, adequate mouth protection that a boy could, or would be willing to wear, meant a protector custom made by a dentist.

Costs Prohibitive—Even if a dentist were to donate the time and service required for impression taking and laboratory processing of individually constructed mouth protectors, the laboratory cost would prevent most boys from purchasing them. This is the reason why so few boys have had adequate mouth protection in the past and why the rate stands at 52 per cent for injuries of the mouth, lips, and jaws.

Rate can be Lowered—That the injury rate can be eliminated or reduced nearly 100 per cent is illustrated by an experiment conducted by the author who made and donated



2. ***Body contacts can be rough in football. The mouth protector prevents the lips from being cut by the teeth, the teeth from being chipped or knocked out, and by acting as a shock absorber, can prevent serious concussions.***

fifty mouth protectors to a high school in his locality; for a two-year period there were no tooth, lip, jaw, or concussion injuries.

The only injury in the facial area that occurred during this time was to a player who was not wearing one of the mouth protectors. In the excitement of entering the game as a substitute one boy left his mouth protector on the bench and had two front teeth knocked out thus spoiling a 100 per cent record of prevention of injury.

Mouth Protector for General Use Designed

Encouraged by the results of the experiment, after studying innumerable casts of mouths, the author devised a master cast design for small, regular, medium-large, and large arch sizes of the upper jaw. Using the curve of spee, heights of contour, muscle attachment areas, and the approximate junction of the hard and soft tissue of the palate, a mouth protector for general application was designed for each of these sizes.

Compensation for Irregularities—Because the mouth protector is made of a soft velum type of rubber (flavored with wintergreen to keep the mouth cool and moist and to eliminate the odor and taste of rubber) compensation is provided for individual irregularities of tooth placement in the jaws.

Protector is Individualized—Correct arch size is selected for the wear-

er by the use of a paper template which registers the arch size of the person when he bites on it, or when it is laid against his teeth. The following areas of possible impingement are embossed upon each mouth protector:

1. Labial frenum
2. Buccal muscle attachments
3. Third molar area
4. Palate

Instructions Accompany Device—Complete instructions as to size selection, individual fit or adjustment, and directions for proper care are included with each mouth protector in a plastic container.

Advice Emphasized: The most important wording in the instructions is the following: "If any bleeding of the gums occurs when wearing the mouth protector, your teeth probably need cleaning by a dentist!"

Should be Fitted by Dentist: The instructions also state: "If possible, to obtain best usage, this protector should be fitted to your mouth by a dentist."

Conclusion

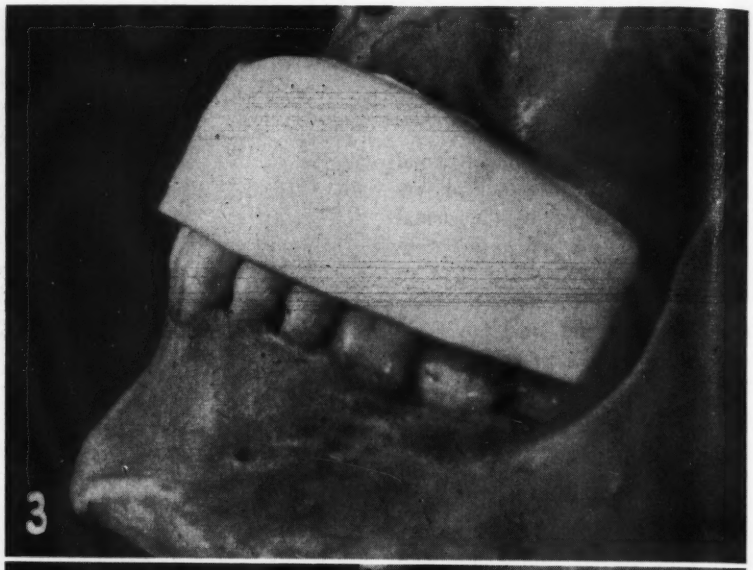
For experimental purposes, before the mouth protectors were merchandised, approximately 15,000 were given away or sold at a nominal rate to schools where various types of contact sports were played. Twenty-three high schools in Northern California which purchased these mouth protectors and gave them to their football players had no claims for lip, tooth, or jaw injuries against the state insurance agency covering the high school.

The other high schools of the state had dental injury claims amounting to approximately $8,000.

These mouth protectors (Voit®) are available at sporting goods dealers and cost $2.00 to $2.75 each, depending upon the quantity ordered.

It was demonstrated that from a practical point of view preventive dentistry can be achieved for contact sports by the use of mouth protectors.

701 *American Trust Building.*

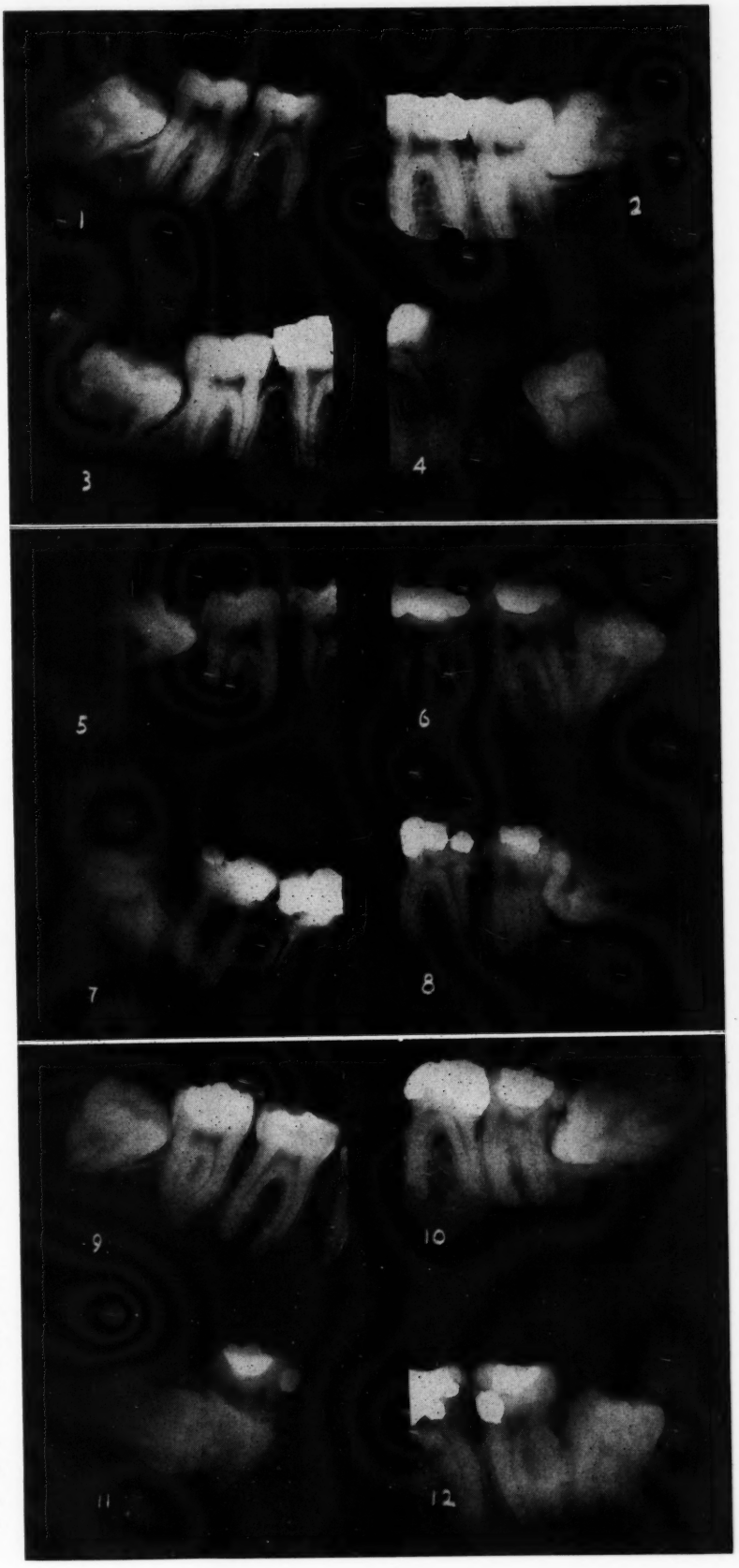


3. ***The mouth protector in place. Note that the upper teeth are prevented from striking the lower teeth by the extension of the protector over the lower teeth. This also prevents lateral displacement or dislocation.***

4. ***The mouth protector acts as a shock absorber and spacer between the upper and lower teeth by holding the bite open and preventing the head of the condyle from striking the glenoid fossa on a severe blow, thus avoiding a concussion or possible subdural hemorrhage.***

Some Diagnostic Points in Roentgenographic Interpretation of Lower Third Molars

HERMAN BRODY, D.M.D.
Springfield, Mass.



DIGEST

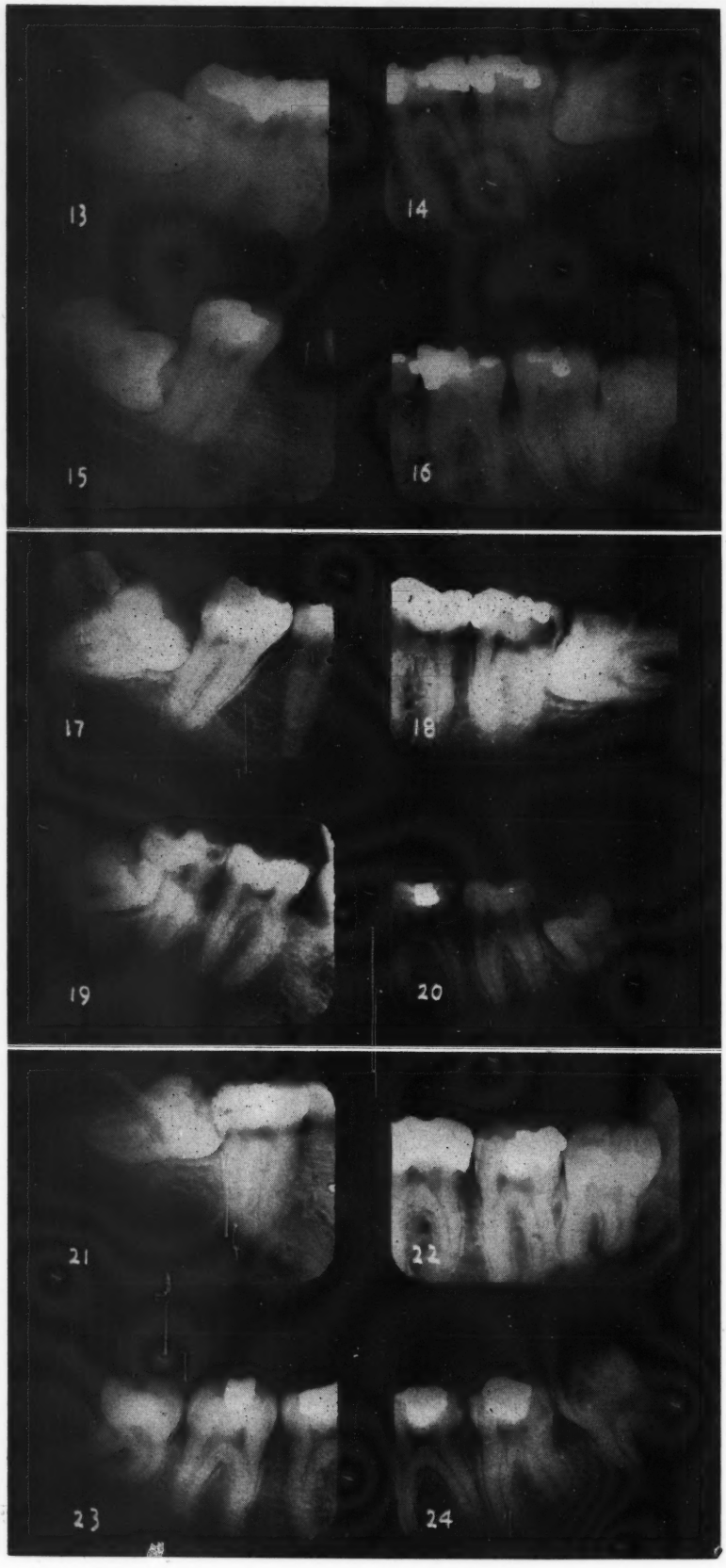
This article enumerates a variety of diagnostic factors, which may be revealed by roentgenograms, having an important bearing on surgical procedures in removing impacted lower third molars. The many deviations from the normal that may exist in these teeth are thoroughly illustrated.

Routine Use of Dental Roentgenograms

Prior to the use of roentgenography in dentistry, the detection of impacted teeth was only possible when they were partly erupted or when severe infections in the surrounding tissues made surgical operations necessary.

Today, the routine use of dental roentgenograms eliminates exploratory operations and substitutes for guesswork a definite plan for operative procedures in the removal of these teeth.

In this discussion, because of popular usage, all lower third molars that are malposed, unerupted, embedded, or wedged will be referred to as impacted teeth.



1. *Impacted third molar.*

2. *Malposed third molar.*

3. *Unerupted lower third molar.*

4. *Embedded lower third molar.*

5. *Mesioangular impacted lower third molar.*

6. *Distoangular impacted lower third molar.*

7. *Vertical impacted lower third molar.*

8. *Horizontal impacted lower third molar.*

9. *Mesioangular lower third molar below plane of occlusion.*

10. *Horizontal impacted lower third molar almost on plane of occlusion.*

11. *Horizontal lower third molar below plane of occlusion.*

12. *Vertical impacted lower third molar below plane of occlusion.*

13. *Horizontal impacted lower third molar with buccal deflection in contact with second molar.*

14. *Occlusal surface of crown of horizontal impacted lower third molar in close contact with second molar.*

15. *Occlusal surface of crown of horizontal impacted lower third molar in contact with second molar.*

16. *Mesial root and mesial surface of crown of distoangular third molar in contact with second molar.*

17. *Mesioangular impacted lower third molar with a large crown.*

18. *Horizontal impacted lower third molar with a large crown.*

19. *Mesioangular impacted lower third molar with a small crown.*

20. *Mesioangular impacted lower third molar with a small crown.*

21. *Mesioangular impacted lower third molar with fused roots.*

22. *Vertical impacted lower third molar with mesial root inclined distally and distal root straight.*

23. *Vertical impacted lower third molar with mesial and distal roots inclined distally.*

24. *Vertical impacted lower third molar with mesial root straight and distal root inclined distally.*

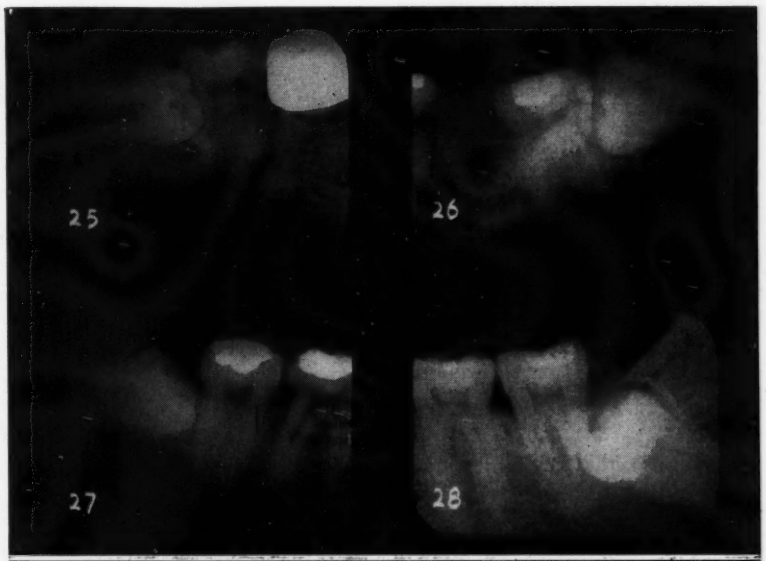
Roentgenograms an Aid to Diagnosis

Some diagnostic points to be interpreted from roentgenograms are the following:

1. Deviations of the position of the tooth as compared with its normal position (Figs. 1, 2, 3, and 4).

2. Its position in relation to the second molar (Figs. 5, 6, 7, and 8).

(The position, size, and shape of the crown are of prime importance when examining a roentgenogram of an impacted lower third molar. Its relationship to the second molar should be carefully noted. The positions in which the crown of the lower



25. ***Horizontal impacted lower third molar with osseous tissue overlying the distal surface of the crown and the distal root.***

26. ***Horizontal impacted third molar with osseous tissue overlying its distal root.***

27. ***Mesioangular impacted lower third molar with osseous tissue overlying the crown and distal surface roots.***

28. ***Deep-seated mesioangular lower third molar with osseous tissue overlying the distal surface of crown and distal root.***

29. ***Horizontal impacted lower third molar wedged between the second molar and ramus.***

30. ***Vertical impacted lower third molar wedged by the ramus because of insufficient space.***

31. ***Distoangular impacted lower third molar wedged in ascending ramus because of lack of space.***

32. ***Vertical impacted lower third molar wedged in ascending ramus because of insufficient space.***

33. ***Second molar adjacent to mesioangular impacted lower third molar. It is seriously involved with dental caries.***

34. ***First and second molars afflicted with advanced periodontoclasia.***

35. ***Second molar involved with resorption on the distal surface because of contact with mesioangular impacted lower third molar.***

36. ***Second molar ravaged by dental caries. It is nonrestorable.***

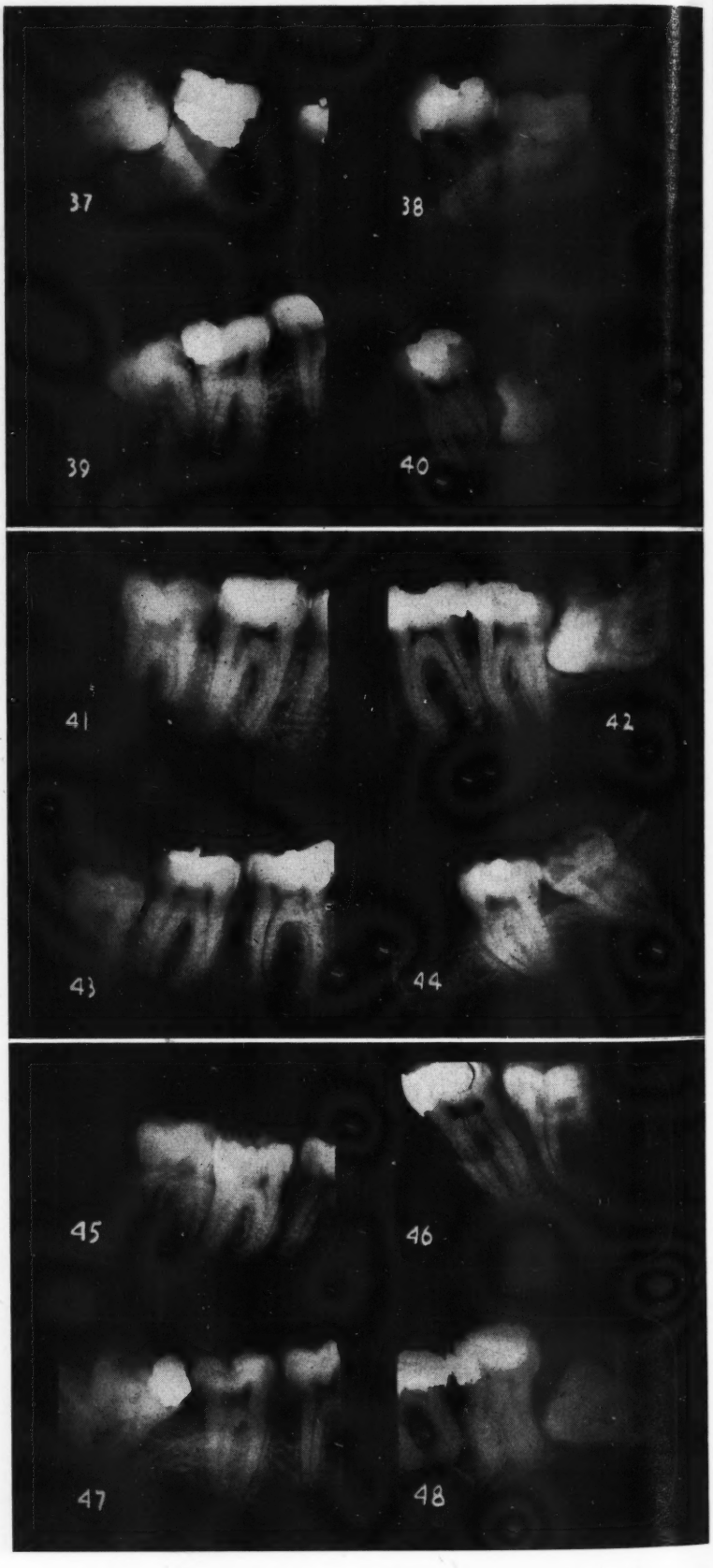
third molar may occur are determined from the roentgenogram and have four principal classifications: vertical, mesioangular, distoangular, and horizontal.)

3. The distance of the crown below the plane of occlusion (Figs. 9, 10, 11, and 12).

(The further the crown of the impacted tooth is from the plane of occlusion, the more difficult will be the extraction.)

4. The amount of tooth surface involved if there is contact with the second molar (Figs. 13, 14, 15, and 16).

(When an impacted third molar occupies a position extremely close to the second molar, utmost care must



37. ***Inferior dental canal located lateral to the roots of a mesioangular lower impacted third molar.***

38. ***Inferior dental canal located at the apex of a vertical impacted lower third molar.***

39. ***Inferior dental canal located at the apex of a distoangular impacted lower third molar.***

40. ***Mesial surface of crown and root of a horizontal lower third molar lying over the inferior dental canal.***

41. ***Vertical impacted lower third molar with accessible interproximal space.***

42. ***Mesioangular impacted third molar with an inaccessible interproximal space.***

43. ***Vertical impacted lower third molar with an inaccessible interproximal space.***

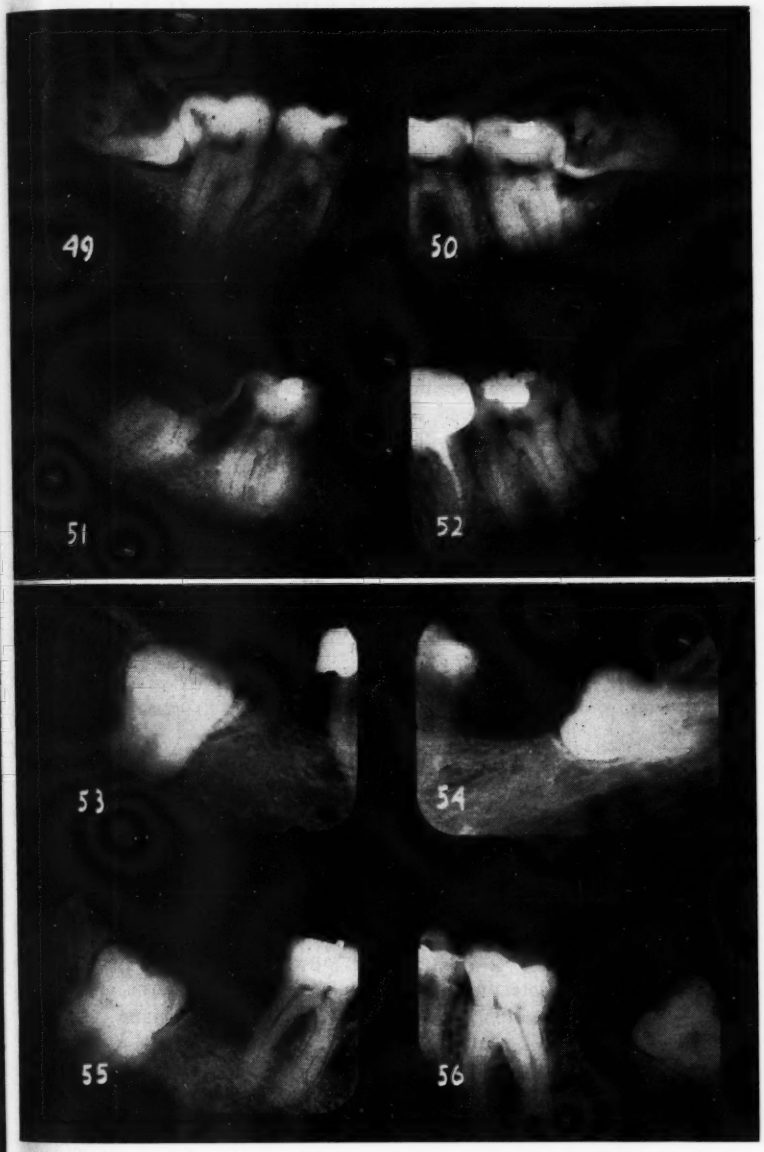
44. ***Mesioangular impacted lower third molar with an accessible interproximal space.***

45. ***Vertical impacted lower third molar showing evidence of pericoronal osteitis.***

46. ***Partial resorption of the distal root of a lower third molar. Evidence of periapical infection is present.***

47. ***Mesioangular impacted lower third molar showing evidence of periapical infection.***

48. ***Mesioangular impacted lower third molar showing evidence of a follicular cyst.***



49. ***Horizontal impacted lower third molar with a large carious lesion.***

50. ***Mesioangular lower third molar with the crown hollowed by caries.***

51. ***Vertical impacted lower third molar severely afflicted with caries.***

52. ***Vertical impacted lower third molar with the crown virtually destroyed by caries.***

53. ***Vertical embedded lower third molar.***

54. ***Horizontal embedded lower third molar.***

55. ***Vertical embedded lower third molar.***

56. ***Mesioangular embedded lower third molar.***

---

be exercised not to loosen or injure this tooth.)

5. The size of the crown (Figs. 17, 18, 19, and 20).

(The larger the crown, the greater the amount of bone that must be excised during the removal of impacted teeth.)

6. The division or fusion of the roots and their curvatures (Figs. 21, 22, 23, and 24).

(Impacted lower third molars have fused roots, divergent roots, extra roots, hypercementosed roots, and roots with partial development. With knowledge of root formation, the removal of impacted teeth is greatly facilitated.)

7. The amount of osseous tissue overlying the occlusal and distal surface of the crown and distal root (Figs. 25, 26, 27, and 28).

(The greater the amount of osseous tissue overlying an impacted tooth, the more difficult the extraction will be.)

8. The available space between the second molar and the ascending ramus as compared with the size and position of the third molar (Figs. 29, 30, 31, and 32).

(When the available space between the second molar and the ascending ramus is small, there is usually heavy osseous tissue over the occlusal and distal surfaces of the crown of the impacted teeth. In this case the impacted third molar is wedged under the ascending ramus and is usually of the vertical or distoangular type. Distoangular impactions present one of the most difficult problems of impactions.)

9. The condition of the second molar and the alveolar process supporting it (Figs. 33, 34, 35 and 36).

(As a rule, the lower impacted third molars may be removed without disturbing the second molar. There are times, however, when the second molar is so hopelessly afflicted with caries or periodontoclasia that it must also be extracted. Before undertaking the removal of an impacted lower third molar, the condition of the second molar should be carefully scrutinized.)

10. The proximity of the inferior dental canal (Figs. 37, 38, 39, and 40).

(The inferior dental canal should be carefully observed in the roentgenogram and its relationship to the impacted tooth noted in order to avoid injury to this canal, its nerve, and blood vessels.)

11. The size of the interproximal space between the second and third molars which determine whether there is adequate room for the application of the blade of an elevator (Figs. 41, 42, 43, and 44).

(The space between the distal surface of the second molar and the mesial surface of the third molar varies in size according to the position of the impacted tooth.)

12. The presence of any pathologic areas, such as follicular cysts, alveolar abscesses, and pericoronal osteitis (Figs. 45, 46, 47, and 48).

(Pathologic conditions are frequently found in the areas of impacted lower third molars. Such infections must be eradicated during the removal of these teeth.)

13. Carious impacted third molars. (Figs. 49, 50, 51 and 52).

(The removal of impacted third molars with crowns affected by extensive caries is more difficult than with teeth having intact crowns.)

14. Embedded lower third molars (Figs. 53, 54, 55, and 56).

(Clinically, embedded teeth are usually detected by a sinusal opening in the gingival tissue which is frequently some distance from the tooth. In some cases a cusp of the occlusal surface or the distal surface of the crown is exposed through the gum tissue.

Embedded teeth often cause neuralgia or cellulitis of the surrounding tissues. They should also be removed for mechanical reasons since they frequently interfere with the fit of a denture.

Conclusion

Before undertaking the removal of an impacted lower third molar, a thorough roentgenographic and clinical examination should be made so that the correct operative procedure can be more readily determined.

If the dentist interprets the delineations presented by the roentgenogram, he will have an excellent guide to assist him in performing a successful surgical operation.

1597 *Main Street.*

Relief of Pain

PAIN CAN be considered from several points of view: (1) An organic basis is discovered and treated; (2) the cause is undetected and pain is treated as a symptom; (3) the difficulty is psychogenic.

Few patients who have been in pain for long periods of time become inured to pain. The longer pain must be endured, the less well it is tolerated. It is pointed out that (1) patients who are in pain as a result of physical disease usually describe their symptoms precisely, (2) signs of physical disease and suffering are commonly evident, (3) there is a demonstrable limitation of movement consistent with the presence of pain, and (4) analgesics provide a full or partial measure of relief.

In contrast, patients' complaints are thought to have a psychogenic basis (1) when there are no signs of physical disease, (2) when pain persists long past the usual period of subsidence of a known acute illness or physical injury, and (3) when pain is precipitated and aggravated by discussion of topics emotionally distressing.

Procedures for Relief

A number of well-established procedures are available for relieving pain, including the following: (1) mechanical means, (2) the use of heat or water to lessen spasm, (3) either a surgical attack on the source of pain or surgical interruption of pain circuits in the peripheral and central nervous systems, (4) the use of anesthetic agents acting locally in the spinal cord or centrally on cerebral function, (5) psychotherapy, and (6) analgesic drugs.

Use of Drugs

According to one authority, drugs that relieve pain are divided into four classes: (1) those that act on the organ or tissue producing the pain, (2) those that act locally to block the conductivity of pain fibers, (3) the true anesthetics that produce unconsciousness, thereby relieving awareness of pain, and (4) the analgesics, which selectively depress the central appreciation areas without loss of consciousness.

The drugs of the first group are the most desirable, since they act to restore normal function. The analgesics are the most widely prescribed; however, when used promiscuously they constitute a clear and present therapeutic danger, for such practice encourages lax diagnosis on the part of overly busy physicians.

When the precise reason for pain remains undetermined, prescribing an analgesic should be considered to be but a temporary, humane expedient and not an end in itself. There is little doubt that, when analgesic drugs are employed on a rational basis, physicians will come nearest to fulfilling with credit that phase of medical practice which, at least to the patient and his family, is of prime importance—the relief of pain.

Adapted from Editorials and Comments, *Journal of the American Medical Association* **149**:66 (May 3) 1952.

The EDITOR'S *Page*

"LIFE IS one long process of getting tired." So said Samuel Butler and all of us practicing dentistry are quick to agree. The dentist is subject to fatiguing occupational hazards. He works under poor postural conditions, he expends prodigious nervous energy performing delicate operations on anxious and fidgeting people. He is held within the confines of a small operating room that gives him few opportunities for environmental changes.

Time and motion studies have been made in industry to reduce fatigue and to increase efficiency. Similar studies should be made in dental practice to control lost and purposeless motion and to conserve our energies for productive tasks. The design of operating units, of dental chairs, of instrument cabinets, of laboratory equipment should be studied with a view of increasing efficiency and reducing operator fatigue. This might be a combined undertaking of engineers, biologists, and practicing dentists.

Although all of us lament and complain of tiredness from time to time, we do little to change our habitual habit patterns to decrease fatigue. Actually, we are not too aware of the biologic processes that produce tiredness. A British symposium on ergonomics[1] has developed fundamental information on the subject of fatigue. The views of two physiologists on this symposium are of particular importance to dentists.

G. P. Crowden of the London School of Hygiene and Tropical Medicine: "drew particular attention to the fatiguing effects of static muscular effort due to bad posture which limited the essential blood supply and consequently the oxygen supply to working muscles. In this connection he commented on the influence of temperature and the need for operatives at work-benches to have seats of appropriate height so that they could sit or stand without handicap to performance."

A. Heminway of Leeds School of Medicine:

"In terms of neuromuscular activity the failure of a muscle to continue to develop tension at the original level might be due to a failure of the fibres themselves or to a failure of the nerve impulses to reach and affect the muscle fibres; the latter might be due to impairment in conduction in the fibres, at the synapses or at the muscle end-plates. It had been shown that with continuous use impairment could occur in all these situations, despite the classical view that the muscle end-plate was the seat of neuromuscular fatigue. The transmission of nerve impulses or the development of tension in muscle fibres presumably entailed a release of energy and subsequent restoration of the system responsible for its release—a process which might depend on local resynthesis or on the use of stored material. In the long run continued restoration was likely to require the arrival of fresh material and the removal of metabolites. The time of onset of fatigue at a particular rate of working might therefore be determined by the rate of transport of materials by the working tissue to or from the site of activity, and the maintenance of this store of materials over a period would depend upon its supplementation. Sometimes side-effects prevented the full use of the transport mechanism. For example, the circulatory adjustments necessary for temperature regulation during prolonged and severe muscular effort in a warm environment took a larger proportion of available cardiac output than when the effort was made in a cool environment. Again, two forms of muscular activity might be equal in metabolic cost, but one might favor venous return to the heart and the other, owing to sustained muscular contraction, hinder it."

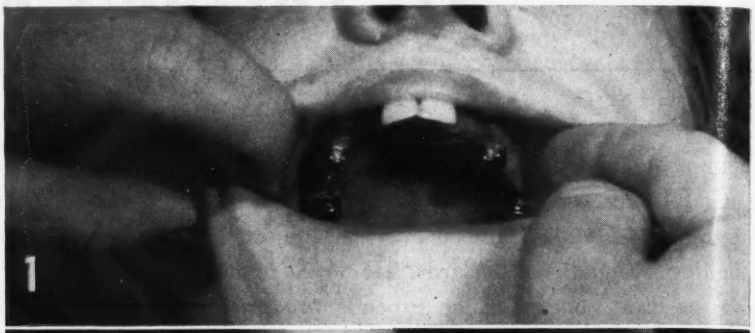
The dentist is certainly subject to "static muscular activity due to poor posture." And he often subjects himself to needless strain in unfavorable environmental temperatures. By the use of an operating stool he can improve the postural and circulatory hazards. An air-conditioned operating room to control temperatures and humidity will decrease fatigue and increase efficiency.

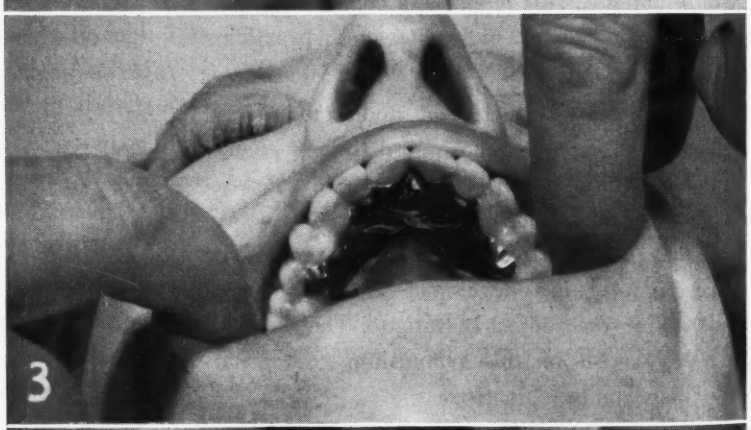
[1]British Medical Journal No. **4762**:814-816 (April 12) 1952.

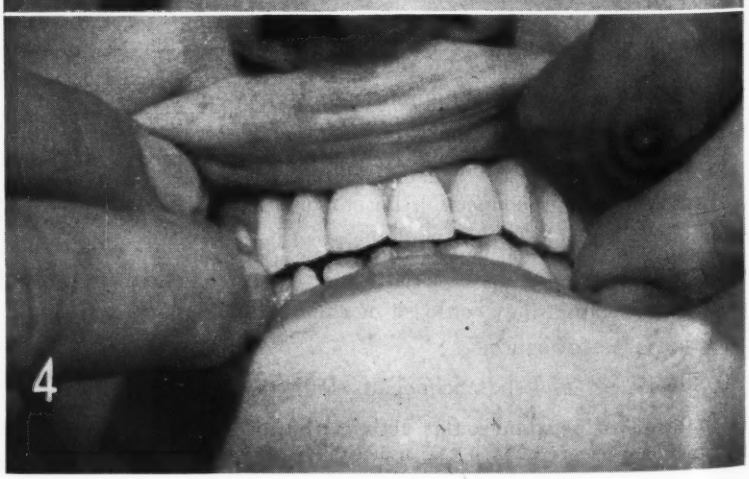
UPPER IMPLANT *for an Immediate Partial Denture*

WILLIAM I. OGUS, D.D.S.

Washington, D.C.







DIGEST

Since his research report on the implantation of metals in the February 1951 issue of DIGEST the author of this article has continued his interest in the implant technique. In the present report a new modification is described for an upper implant in a mouth where the posterior teeth are missing and two anterior teeth are still in position.

Case History

The patient in this case was unwilling to adjust to a complete artificial denture and specifically requested that procedure for an upper implant be attempted in her case.

The patient's remaining anterior teeth had been diagnosed as unfit for retention because of extensive caries and periodontal involvement. The two centrals were the only sound teeth remaining in the upper arch. The palate presented a torus palatinus.

1. ***Completed healing of tissues and covering of implant, showing four metal abutments and two anterior teeth.***

2. ***Partial superstructure to fit implant. The two centrals can be added to the denture if lost at any time.***

3. ***Partial denture in position.***

4. ***Completed case.***

First Operation

The initial surgical procedure in this case involved the following measures:

1. Under local anesthesia, a straight incision was made from the mucobuccal fold across ridge and palate from the cuspid-to-cuspid area, through the periosteum to the bone.

2. A second incision was made from the cuspid area palatally to within half an inch from the center of the ridge, and carried distally to the first molar area; the incision was then curved toward, and across, the ridge through the second molar area.

3. A third incision was made on the opposite side in the same manner as the second incision.

Tissue Retracted—With a heavy periosteal elevator the tissues were retracted on one side over the alveolar ridge; they were then retracted on the other side. The incision across the palate was entered and the tissue retracted distally, completely uncovering the palate. The alveolus was reduced to a flat shelf.

Slots Prepared for Implant—1. A slot was prepared in the bicuspid area for seating the implant; for the second slot the socket of the bicuspid which had been extracted was utilized.

2. The opposite side was prepared in the same manner, except that a slot was made in the first bicuspid area as well as in the molar area.

3. The torus was then smoothed flat; a slot was cut across the torus 5 millimeters long and 3 millimeters deep.

Impression of Bone Taken—1. The cast tray which had been made previously was filled with modeling compound and an impression was taken of the exposed bone, including the slots on the ridge and the slot on the torus.

2. The tissues were replaced and sutures were made as indicated.

3. Healing was complete in three days; the sutures were then removed.

Second Operation

The casting was completed ten days later and the second surgical procedure was completed in the following manner:

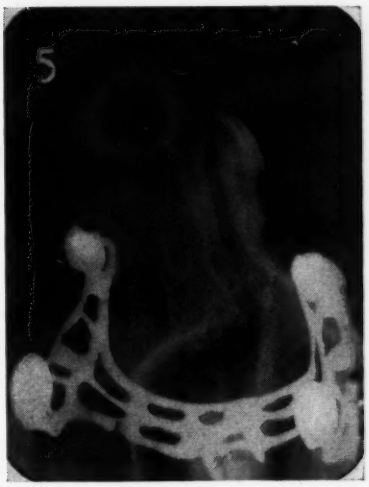
1. Again under local anesthetic, the original incision line was followed and the tissues were retracted.

2. The implant casting which had been subjected to cold sterilization was then fitted into place and forced into position.

3. Using the two screw holes placed in the slot of the torus casting, a hole was drilled in the bone smaller than the screw. This had to be carried the length of the screw, 5 millimeters.

4. The two screws were screwed into position and the tissue put into place and then sutured.

Impression of Upper Arch—Healing was complete in four days and the sutures were removed. Impressions were then made of the upper arch which contained at this time four metal teeth and six anterior natural teeth.



5. ***X-ray of the implant in position. Note the two screws in the torus. Note the excellent fit of the implant.***

Denture Inserted—Ten days following the second operation (twenty days after the first operation) the two cuspids and the two laterals were removed. The denture was inserted and served as an immediate partial denture replacement.

Conclusion

The implant was firm upon insertion. If the time of casting could be reduced to one day the denture could be inserted immediately. The patient was able to eat a meal immediately. She is well pleased with the successful results obtained. The implant denture has been in function satisfactorily for over seven months.

This case also illustrates the planning and insertion of an implant upper before anterior teeth are lost, and can later serve as an upper full implant when anterior teeth have to be removed.

1832 *Eye Street, N.W.*

EXOGENOUS OBESITY *and Dental Anomaly*

Report of a Case

LOUIS H. GUERNSEY, D.D.S., Gooding, Idaho

DIGEST

This case history is an excellent illustration of the advantage of cooperation between the dentist and the pediatrician. Before dental treatment was undertaken the patient's obesity had greatly improved and the pediatrician's report on her general physical condition was extremely helpful to the dentist in diagnosing and planning treatment.

Clinical Examination

The patient, a somewhat obese girl, aged 9, was presented for an oral examination by her parents. Visual examination of the mouth revealed the following conditions: 1. Mixed dentition, a high narrow palate with malocclusion, and fused teeth. 2. A peg-shaped upper left lateral incisor, had been displaced lingually by the erupting permanent cuspid. 3. A moderate amount of dental caries.

Physical Examination

Gross appraisal of the child gave rise to the suggestion that an endocrine disturbance might be the basis for her obesity. Her face was particularly inexpressive, and her eyesight was being corrected for myopia which increased the impression of possible endocrine imbalance.

Pediatrician Consulted

Before any extensive dental treatment was undertaken the patient was referred to a pediatrician for an appraisal of her general health.

Preliminary Report—The results of the examination by the pediatrician in his first report were the following: (1) The patient was well developed. (2) The thyroid gland was not palpable. (3) Blood pressure was within normal limits. (4) Other conditions, including the neurologic, were negative.

Observation—It was considered advisable to observe the patient for a short period of time. Two grains of thyroid daily were prescribed and the parents were asked to bring her back for further study in six weeks.

Results have been found to be more satisfactory when thyroid is prescribed first and x-rays of the wrists and a lateral plate of the head to determine the size of the pituitary are taken later. The blood cholesterol is also much more accurate following thyroid substance therapy.

Thyroid Therapy Helpful—The patient was not considered to be a genuine endocrine problem. Obesity was thought more likely to be the result of too many calories. However, further study was undertaken to disprove or support this assumption. The dental abnormality in these cases sometimes improves with thyroid therapy, possibly with the addition of some anterior pituitary extract.

Pediatrician's Final Report—Two months later the pediatrician reported the following conditions: (1) The patient had lost 6½ pounds. (2) X-ray studies of the head revealed a normal sella turcica and normal genital-skeletal structures. (3) X-ray studies showed the bone consistent for an age between nine and ten years. (4) The blood chemistry was well within normal limits.

Diet Restricted—It was believed that the obesity was exogenous but 1 grain thyroid daily seemed indicated. Dexedrine was prescribed in an effort to reduce the patient's appetite, and her mother was advised as to proper diet. Continued observation at intervals was suggested in an attempt to stimulate further weight reduction.

Roentgenographic Examination

Full mouth roentgenograms taken eleven months after first seeing this patient revealed the following conditions:

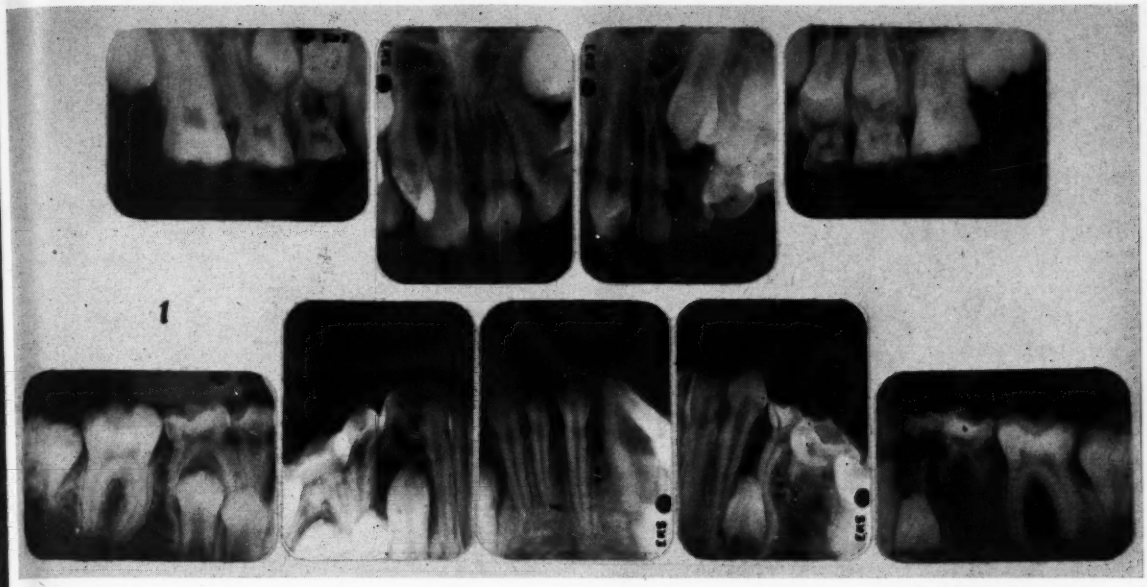
1. A mixed dentition.
2. Misshapen and malformed upper central incisors.
3. A congenitally missing lower left second incisor.
4. Congenitally missing lower right first and second bicuspids.
5. A peg-shaped upper left lateral incisor which was erupting lingually.
6. A false fusion of the first and second right deciduous molars.
7. A peg-shaped supernumerary tooth erupting under the mesial root of the geminated tooth.
8. Carious lesions in the deciduous as well as in the secondary dentitions (Fig. 1).

Hereditary Basis Absent

There seemed to be no past history in the child's family to explain the conditions present, especially with regard to the congenitally absent teeth.

Initial Treatment

1. All carious lesions were prepared and restored.
2. It was decided that even though the fused first and second deciduous



molars might not be a proper substitute for two normally positioned bicuspids, they should be retained as they adequately filled the space between the first molar and the cuspid, and were in moderate functional occlusion.

Types of Gemination

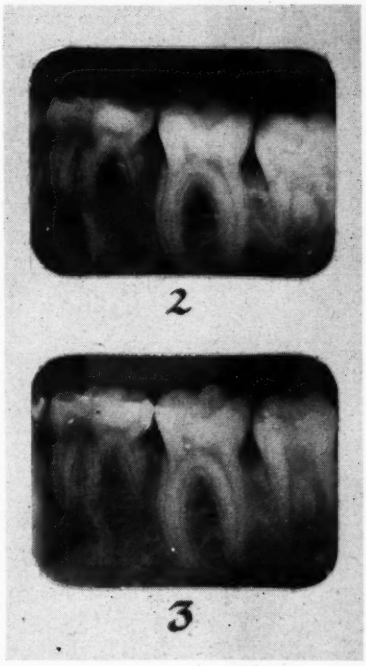
Because of the unusual appearance of the fused tooth, a review of gemination was made.

True Gemination—According to Ennis,[1] true gemination is the term applied to those teeth which are formed together during developmental periods, and which show in the roentgenogram the existence of a common pulp chamber and a union of the enamel and the dentine.

False Gemination—The result of a productive periostitis which causes the osteoblasts of the root membrane to lay down an overgrowth of cementum is described as false gemination. In the roentgenogram, therefore, the affected teeth show two distinct pulp chambers and a union of dentin only.

Diphyodontic Gemination—That condition in which a deciduous tooth may become firmly united to a member of the permanent series is termed diphyodontic gemination.[1]

1. ***Roentgenograms indicating anomalies and pathologic conditions present.***



2. ***Postoperative roentgenogram taken immediately following surgery.***

3. ***Postoperative roentgenogram showing satisfactory primary healing.***

Etiology Obscure—Thoma[2] ascribes the etiology of fusion to a developmental defect of unknown cause, perhaps an evolutionary phenomenon. McBride[3] is of the opinion that it occurs through an irregularity in the tooth germs. Endelman and Wagner[4] state that during the developmental period distortion by pressure of the enamel organs of the fused teeth takes place which affects either the developing roots or the crowns. Fusion of the first dentition occurs most often between the cuspid and lateral incisor and is most common in the maxilla.[3]

Dental Anomaly—The case discussed in this article does not exactly fit any one definition of gemination but was considered by the author to be false gemination and was of particular interest because it involved mandibular deciduous teeth which are seldom involved in fusion.

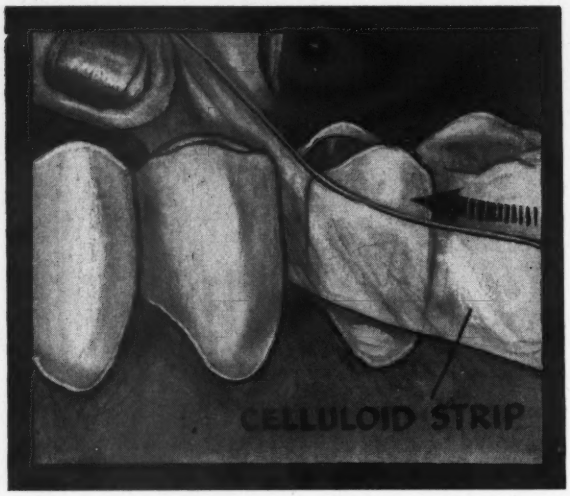
Surgery

Approximately a year after the first appointment with the patient the following surgical steps were taken:

1. Under mandibular block anesthesia a semilunar incision was made over the area containing the impacted supernumerary tooth.
2. The periosteum was reflected and the bone was exposed.
3. The bone was opened by making several holes through the cortical

(*Continued on page* 373)

[1]Ennis, Leroy M.: Dental Roentgenology, Philadelphia, Lea & Febiger, 1939, p. 310.
[2]Thoma, Kurt H.: Oral Diagnosis and Treatment Planning, Philadelphia, W. B. Saunders Company, 1936, p. 137.
[3]McBride, Walter C.: Juvenile Dentistry, Phildelphia, Lea & Febiger, 1937, pp. 154-155.
[4]Endelman, Julio, and Wagner, A. F.: General and Dental Pathology, St. Louis, C. V. Mosby Company, 1920, pp. 284-285.



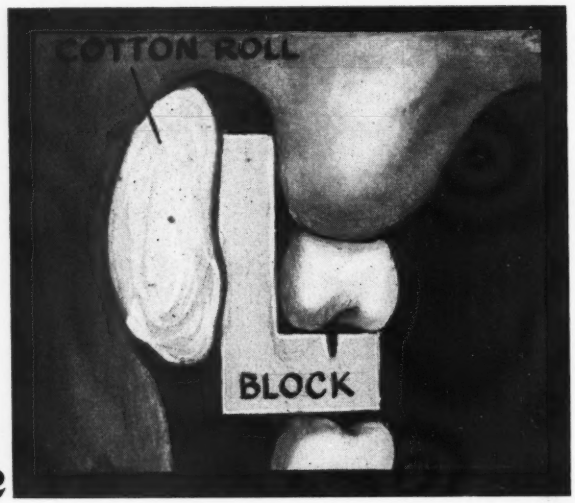
1

Clinical and Laborato

Burnishing an Interproximal Amalgam

Harold Crandall, D.D.S., Salina, Utah

1. After an amalgam restoration has been placed, use a celluloid strip to burnish the interproximal surface. The smooth surface of the celluloid strip will impart a satisfactory finish to the interproximal surface of the amalgam restoration.

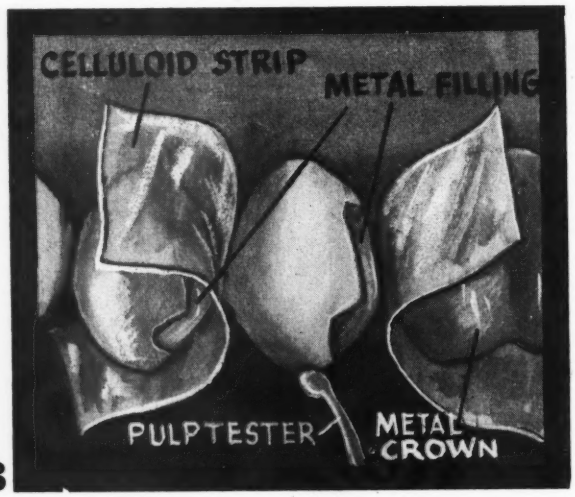


2

Keeping Teeth Dry for Fluoride Treatment

C. Elizabeth Kartzmark, D.D.S., Milford, Conn.

2. Use an x-ray film block to hold a cotton roll away from the teeth. After painting the teeth with fluoride solution, instruct the child to bite on the block. This allows the solution to remain on the teeth without absorption by the cotton roll.



3

A Nonconductor for Use in Pulp Testing

William M. Greenhut, D.D.S., New York

3. When using the electric pulp tester, isolate the tooth to be tested by placing a small celluloid strip proximally on either side of the tooth. Celluloid is a nonconductor and when placed between the teeth in this manner prevents any false response that might be transmitted from metal restorations in the adjacent teeth.

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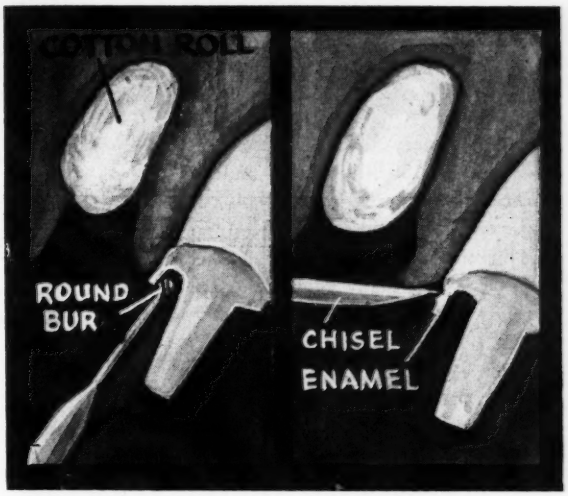
You do not have to write an article. Furnish us with rough drawings or sketches, from which we will make suitable illustrations; write a brief description of the

SUGGESTIONS . . .

Porcelain Jacket Crown Preparation

Lt. Francis D. Dunne, (DC) USNR, Camp Lejeune, N.C.

4. To prevent lacerating the labial gingival tissue on porcelain jacket crown preparations, undermine the enamel with a round bur and then chip away the enamel with a small chisel, depressing the gingival tissue with the shank of the chisel while chipping. In this manner the preparation may be extended subgingivally without injury to the soft tissue.

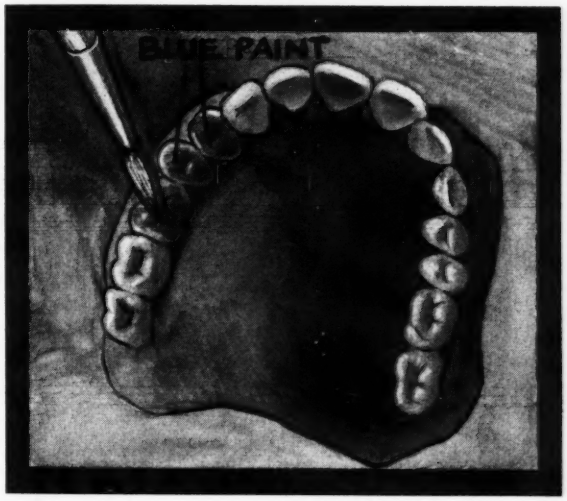


4

Spot Grinding Occlusion on Dentures

A. M. San Dretto, D.D.S., Racine, Wisconsin

5. Remove the denture from the mouth and apply Devoe's Prussian blue water color paint to the occlusal surfaces, using a small brush. Return the denture to the mouth and have the patient bring the teeth into occlusion. Points of interference will be registered.

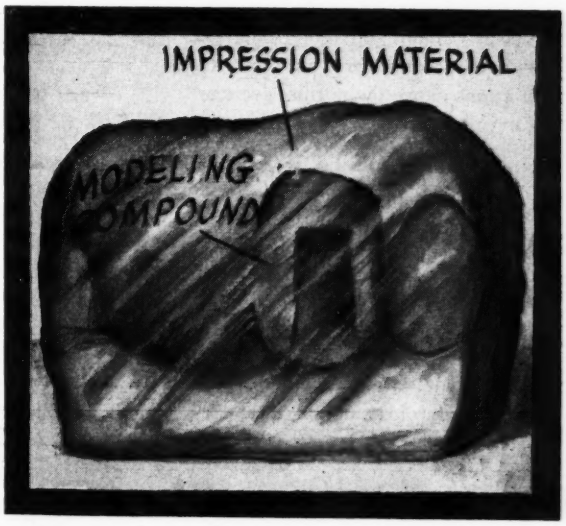


5

Impression for Remaking a Removable Partial Abutment

Hamlin McBride, D.D.S., Carmel, N.N.

6. When failure of an abutment under a removable bridge (especially unilaterals) with cast clasps and rests, requires remaking by the indirect method, it is often difficult to seat the die in the exact relationship to the clasp by ordinary impression methods. After taking a wax bite, softened compound is placed over the prepared tooth and the bridge is seated to proper position determined by other clasp and saddle areas. Chill the compound and take an over-all impression in any suitable material.



6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time. Turn to page 370 for a convenient form to use.

Send your ideas to: Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

MEDICINE and the Biologic Sciences

The Young Coronary Patient

Coronary artery disease causes approximately 150,000 deaths in the United States every year. Many of these are frequently without warning and involve males of a special type. It appears that many robust and apparently virile young men are particularly susceptible.

There has been considerable work done to determine just why robust and apparently very virile young men should be particularly susceptible to coronary artery disease. Many investigators believe that persons likely to have myocardial infarction can be identified well in advance of actual disease.

A formula incorporating serum uric acid, total cholesterol, and lipid phosphorus is helpful in determining a predisposition to coronary artery disease.

The body build of coronary subjects, classified by the Sheldon method, is predominantly muscular with a slight tendency toward corpulence. Thin physiques are virtually immune.

The uric acid content of serum is about 5.13 milligrams per 100 cubic centimeters with heart disease. Without heart disease it is about 4.64 milligrams per 100 cubic centimeters. The content is above 6 milligrams for one fourth of the cardiac patients but for only 6 per cent of healthy subjects.

Serum cholesterol of the coronary patient is about 285 milligrams per 100 cubic centimeters or about 60 milligrams above the normal average. Serum phospholipids rise with age in all cases but less with cardiac involvement. The ratio of total cholesterol to lipid phosphorus is, therefore, more significant than either value alone.

The use of a diet low in cholesterol for heart disease may be questioned. The levels in serum are not related to the amount of cholesterol ingested. Thyroid function is apparently unchanged in coronary involvement.

Daily sterone excretion in urine may be low before coronary episodes. With actual disease, the sterone excreted is 10 milligrams. This is not significantly under the normal limit. Fairly often it drops below 6 milligrams thus indicating a serious condition in most cases.

Gertler, Menard M.: Some Morphologic, Hormonal, Biochemical, and Sociologic Aspects of the Young Coronary Patient, Bull. New England M. Center **13**:74-76 (*January*) 1951.

Rheumatic Fever—Duration

Once the diagnosis of rheumatic fever has been made most parents are deeply concerned as to how long the disease will last. Duration varies greatly. It may be only a few weeks or extend to several years. The answer, if given, is not only disconcerting to the parents but often makes management difficult for the physician.

Records show that the approximate distribution for the duration among patients is as follows: (1) 14 per cent last less than two months, (2) 33 per cent last less than four months, (3) 65 per cent last less than eight months, (4) 80 per cent last less than twelve months, and (5) 98 per cent last less than thirty-six months. With older subjects, as observed in the Armed Service personnel during World War II, the average duration seems to be shorter.

Probably many factors determine the duration. Most of these are still unknown.

Early diagnosis and care are significant. Another factor which stands out in determining the length of an attack is the presence of carditis. It is often stated that salicylate administration may assist in reducing the duration of symptoms and even in decreasing the period of rheumatic activity.

The problem of great significance today is the determination of the effect of the adrenocortical hormone on duration, particularly when this medication is given early in the attack. If it is proved that the duration of the individual attack is shortened, the physician who sees a youngster early will have even greater responsibility in the rheumatic fever problem.

Prediction of the duration of a particular attack is rendered more difficult by the polycyclic nature of the disease and is further complicated by its propensity to recur. A distinct attack may closely follow the previous attack. To all appearances, then, the differences in duration are extreme. The importance of this must be recognized by anyone attempting to determine the length of attack.

Rheumatic Fever Symposium: Duration of Attack, Modern Med. **19**:114 (*October* 1) 1951.

Lowered Resistance to Infection from Cortisone and ACTH

Animal experimentation has disclosed the fact that toxic doses of cortisone and corticotrophin (ACTH) usually cause death as a result of unbridled bacterial proliferation. This usually starts in the lungs and leads

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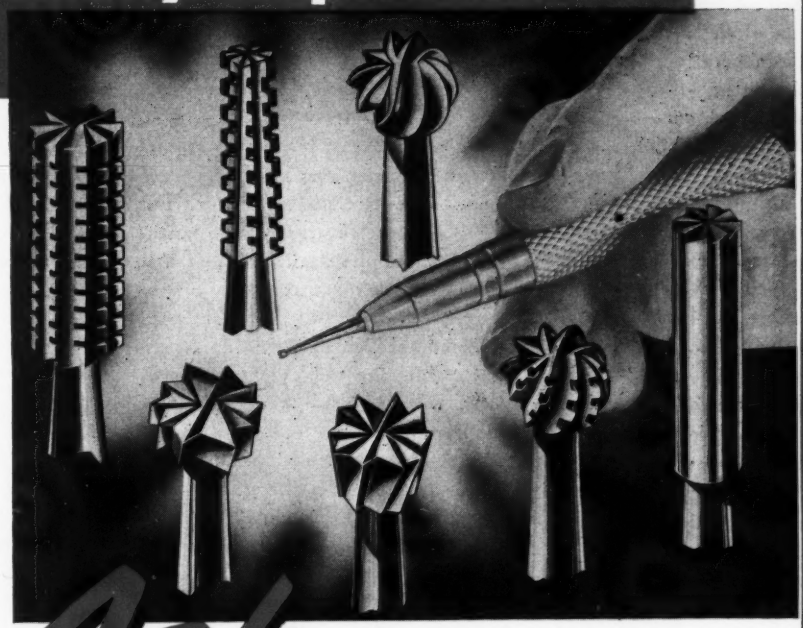

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to pulmonary abscess formation. Eventually it may evoke the picture of general septicemia with abscesses in the liver, spleen, kidneys, and sometimes other organs.

The increasing use of these hormones clinically reveals that they predispose patients to infection in some instances. In particular, they may reactivate dormant foci of pulmonary tuberculosis. Similarly, in certain types of pneumonia, corticotrophin and cortisone may promote the invasion of the causative organism into the general circulation.

The mechanism through which corticotrophin and cortisone diminishes resistance to infection is not yet clearly understood. It is suspected that the inhibitory effect of these hormones on granuloma formation (and the consequent encapsulation of infectious foci) involves their destructive effect on lymphatic tissue as well as their general catabolic effects.

The Committee on Medical Research of the American Trudeau Society has issued a warning against the use of corticotrophin and cortisone not only in patients with active tuberculosis but also in patients with latent tuberculosis infection. When cortisone is given to tuberculous animals a remarkable lack of limitation of spread of tuberculosis process is noted. Fibroplasia is inhibited and freedom of movement through the tissues by the tubercle bacilli is noted. Many clinicians believe similar changes occur in human beings.

It is recommended that all patients who are to undergo prolonged therapy with cortisone be carefully studied prior to and during treatment to determine whether a latent or active tuberculosis exists or develops. Routine diagnostic examinations should be completed. These examinations should include all infections, particularly those for which we have as yet no specific therapy. These hormones should be used with extreme caution at all times.

Seyle, H.: Influence of STH, ACTH and Cortisone upon Resistance to Injection, Canad. M.A.J. **64**:489-495 (*June*) 1951.

Fred, Leo; Levin, Melvin H.; Rivo J. Bernard; and Barrett, Thomas E.: Development of Active Pulmonary Tuberculosis During ACTH and Cortisone Therapy, J.A.M.A. **147**:242-246 (*September* 15) 1951.

Iodized Salt—Importance

For both man and livestock iodine is an important dietary factor. The soils in extensive areas of the northern part of the United States and parts of Canada are extremely low in iodine.

Plants grown on such areas, or water from the wells drilled in such soils, will be too low in iodine to supply the human and animal demands. In the United States, the goiter area involves the states of Illinois, Wisconsin, Ohio, Iowa, Indiana, Nebraska, Michigan, the two Dakotas, Utah, Nevada, Colorado, Montana, Oregon, Washington, and California.

Records of Draft Boards of World War II show that for every 1,000 soldiers furnished from a large area of the northern part of the United States, five to eleven men had goiter. (A goiter was defined as a growth too large to button a military collar around.) There are no records to show the number of slight goiters.

Simple goiter is caused primarily by lack of iodine. The goiter develops as a result of a failure of the thyroid tissues to supply enough secretion. This may be due to a reduced supply of iodine for its manufacture or to an increased demand for this secretion by the body. It is an enlargement involving the formation of more tissues in an effort to supply more secretion.

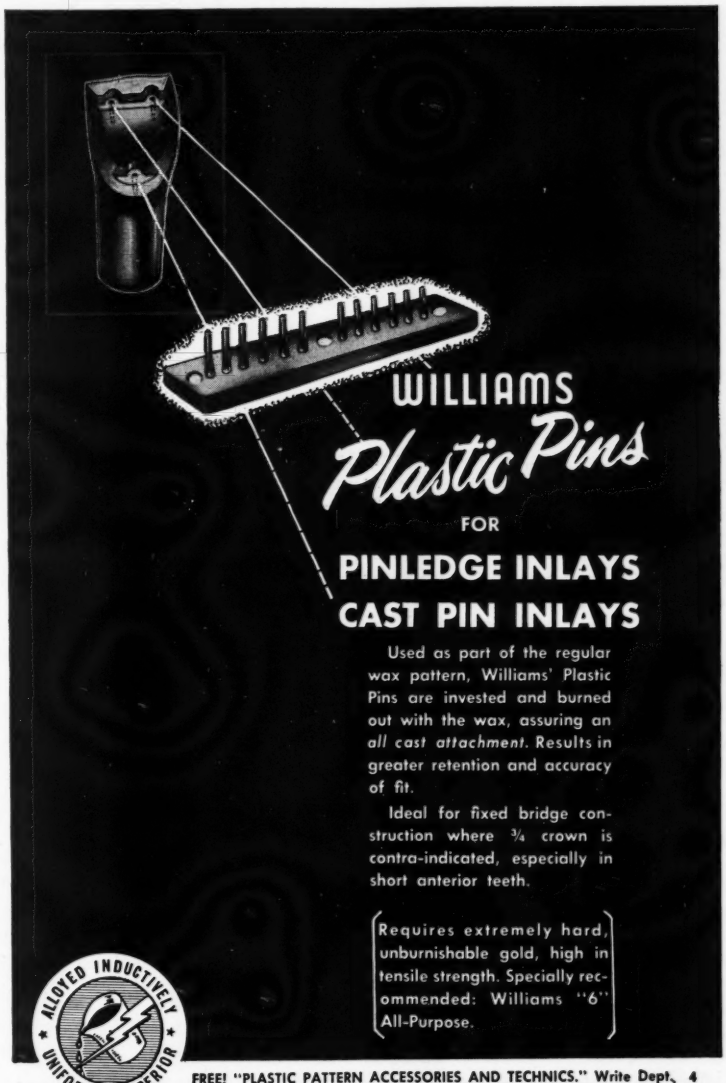
The demand for thyroxine advances with the activity of the body functions it controls. In the human these critical periods are pregnancy and puberty. In farm animals, goiter usually shows itself in the young at birth as a result of a deficiency of iodine in the ration of the mother during gestation. The young thus affected are born weak or dead. It has been estimated that before iodine feeding was practiced in Montana goiter caused an annual loss of one million pigs.

Many persons are not deficient enough in iodine to develop goiter. Still, they suffer from hidden iodine hunger. They feel fatigued and listless. Their skin may be thick and dry and they may not be as alert mentally as they should be.

Most of these ills may be prevented by the use of iodized table salt. This salt will give almost everyone all the iodine he needs for good health. The iodine is carried in the blood stream to the thyroid gland. The thyroid must have a definite amount of iodine for the production of the hormone, thyroxine. This hormone is all-important in stimulating the normal growth of bones, hair and skin, in the development of the brain and in the attainment of sexual maturity.

As manufactured today common salt is virtually free of iodine. By incorporating .5 pounds of potassium iodide in one ton of salt a product is secured which will prevent common goiter when used in amounts commonly in use in the home and feed lot. And with modern methods of stabilization common iodized salt can be maintained for an indefinite period without loss of iodine.

Giles, John L.: Why the Necessity for Iodized Table Salt? J. Michigan M. Soc. **50**:1145-1146 (October) 1951.



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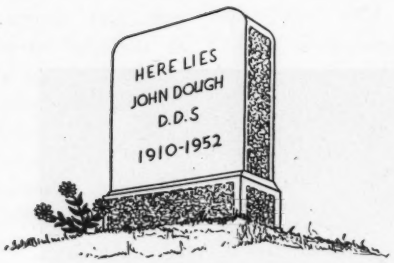

"The Richest Dentist in the Graveyard"

Of course *you* are *not* the richest dentist in the graveyard—yet . . . but if you're driving yourself at too fast a pace—if you're the victim of "ambition-tension"—read Harold Gluck's timely warning. He suggests six remedies to be self-administered—all of them pleasant to take and all guaranteed to lessen the strain on mind and body. The time you "waste" may *save* your life.

★ ★ ★

"How Well Do You Know Your Patients?" asks Doctor Scott Morrison. He has compiled what he calls a "glossary of patients," and you'll smile as you recognize types from your own practice.

★ ★ ★

Are you a "general specialist"? Doctors Goldstein and Levitas use that term in describing the dentist of many talents who engages in general practice. Explaining that the average patient thinks of the specialist as some sort of superman and regards the general practitioner as a jack-of-all-trades, these two dentists suggest that the term, "general specialist" be used to describe "the man who has kept pace with the miracles of modern scientific investigation and experimentation and has grown from 'strength to strength' so that rightfully he can call himself a specialist in the slowly disappearing field of general dentistry."

★ ★ ★

Did you write to Edward N. Novotny (Manager, Social Security Administration, Evanston, Illinois)? Many dentists did after reading his Oral Hygiene article, "After 65—What?" In fact, Mr. Novotny says, "From the time the first copy left the printers until the press run ended, I could follow Oral Hygiene's mailing schedule as queries began to pour in from different sections of the country. That was eleven months ago. Today I am still receiving letters from interested dentists asking questions on specific cases."

This month's article, "What Dentists Are Asking About Social Security," discusses some of the questions and gives authoritative answers.

★ ★ ★

"Send the patient away from the office convinced that it is not dental *treatment* that is costly, it is dental *neglect* that runs up the bills"—and he will realize that recall notices are not attempts to "drum up business" but are part of a service designed to protect his health with minimum strain on his pocketbook. This advice is from the article, "Your Patient Will Appreciate the Reminder" by Sylvia Danenbaum.

★ ★ ★

Getting back to the subject of Social Security, a Texas dentist, Doctor A. B. Strozier Jr., says "No Social Security for Me," and details the reasons why he is not in favor of dentists' participation in the present Federal Social Security program. In the pro and con discussions of this much-discussed subject, Doctor Strozier furnishes one of the most convincing "cons." You will want to read this article.

★ ★ ★

Nine departments and features give you good reading—and a great deal of information.

Contra-Angles

Advice to the Lovelorn and to Others

It used to be that if one wanted advice he sought out his counsellor in the privacy of his office or rectory and received the needed information. Now advice is poured upon us from the columns of newspapers and magazines and over the air lanes. There is no subject in the psychic, somatic, or spiritual domain that is not publicly discussed with clinical candor. If you want to know what the quota of children in your family should be, have patience and some public advice giver will have the answer for you. If some of your private tissues are causing you concern, be assured that before long a newspaper columnist-pathologist will make public description of your difficulties. If you are troubled in affairs of etiquette and social protocol, there is no longer a need to remain a bumbling boor because some arbiter will put you right. If you feel that your handwriting is unique or strange, or if your zodiac signs are askew, consult your local newspaper for an analysis. If you have a touch of a neurosis, or if your garden isn't doing well, turn to the appropriate column.

There are also lecturers who prowl through the land and expound advice for a substantial fee. Some of them receive as much as $500 or $1000 for a talk. If they are not actually shillabers for some product or nostrum, they are often promoting a book that they have written. I have run into some of these promoters at dental meetings and have always been meaning to make some un-nice comments about them. I am glad to report that I have been scooped. The editor of the Indiana State Board of Health Bulletin, Thurman B. Rice,

OUR COMPLETE LINE

of VISUAL AIDS for every dental office...

Here is a complete line of patient-education items you can use every day at the chair. Thousands of practitioners are using one or more of these items regularly. Here are the details:

1. **Your Teeth and Your Life** is a sixteen page two color pamphlet, illustrated with ten charts that show the essential story of the wisdom of periodic dental care and the danger of neglect. Sales to date total over 600,000 copies. Prices, 20 for $1. 100 for $4.

2. **Visual Education in Dentistry** is a series of 31 charts in booklet form—charts designed to explain dental conditions to patients. Many of the charts are printed in full color and are perhaps more widely used than any other available patient-education material. Prices, $1. to Dental Digest subscribers; $2. to non-subscribers.

3. **The Nerve Distribution and Blood Supply of the Head** is a series of three full color charts. Ideal for showing patients the nerve and blood systems in relation to teeth. Price $1.

4. **The Castle That Was Destroyed** is an attractive two color reprint intended for distribution to child patients. Here is ideal dental material presented in story book form. Price, 100 for $10.

5. **Kodachrome Slides**—a series of colored slides taken from 16 of the most popular charts in Visual Education in Dentistry. Standard 2"x2". Fit most projectors. Price, including appropriate lecture material, $16.

The other two items shown in the illustration are the **Ryan Examination and Treatment Record Chart** (dentists refer to it as the most practical chart available for record purposes; price, $1. per pad of 50) and volume 3 of **Clinics On Paper** (100 practical technical suggestions for use in your operatory) prices, $1. to Dental Digest subscribers; $2. to non-subscribers.

The coupon is for your convenience in ordering any or all of the items.

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CLINICAL AND LABORATORY SUGGESTIONS

(*See pages* 362 *and* 363)

Form to be Used by Contributors

To: Clinical and Laboratory Suggestions Editor

DENTAL DIGEST
708 Church Street
Evanston, Illinois

From: _____

_____

Subject: _____

Explanation of Procedure:

Sketch:

Suggestions submitted cannot be acknowledged or returned.

$10 will be paid on publication for each suggestion that is used.

M.D., has done a better job than I could have done:

"The man came to 'our house' and made a speech telling us, the employees of the State Board of Health, to 'take it easy.' Don't get angry; don't hurry; don't cross people; don't worry; give the other fellow his way today and he will then be willing to give in to you tomorrow and everything will be lovely and sweet; your own blood pressure in such case will then stay down and our public relations index will rise to unheard-of levels. He said that we must learn to 'compromise,' but that we must maintain our own personal dignity and integrity; he said that modern psychology teaches that if a given individual is highly intelligent in one line, he is probably very dumb in another, and vice versa; he said that one person is as important as another and that we must give to every person the same consideration that we give to his neighbors. In general that is what I got out of the talk as it is boiled down and expressed in stark language without the window dressing that went with it. He had a perfect right to make such a talk and I shall defend that right to the last ditch, but by the same token ye editor of the *Bulletin* feels it is his duty to point out what he thinks is wrong with it. It was a mess of mush!

"We were told that we should 'compromise.' The next question is, compromise with WHAT? Now I am willing to compromise with some things. My wife wanted to bake a custard pie, though I would definitely have preferred cherry. So we compromised and had custard. I did my part by eating it like a man, and it was darned good, too. She wanted to have the car washed—it did need it—but the weather was threatening and I was elected to wash it myself or pay for the washing, so we compromised. I used a whisk broom on the seats and the floor, and we left the mud on the fenders. If this is what is meant by compromise I can be in hearty accord with it, but the word 'compromise' also has another very real and sinister meaning which can so easily be invoked here where there

Amco-Facts

What is behind the phenomenal adhesive strength of Acrynamel Cement? Since introducing Acrynamel Cement we have been swamped with this question. A brief non-technical answer is as follows. There is no pigment! The wet cement "wets" the dry tooth. It sets with no expansion or contraction. It responds to heat and cold just like the tooth. It continues to adhere wet - dry - hot - cold!

How has Acrynamel Cement been tested? Hundreds of practical tests have been made on natural teeth in and out of the mouth. All of these tests have formed the basis of what we say about Acrynamel Cement.

What is a practical test? Here is one you can make for yourself. Obtain some natural teeth. Keep them wet. Grind in each a shallow large cavity without undercuts. Dry with alcohol. Place Acrynamel Cement in one cavity and your regular cement in another.

Test A. After cement has set for 10 minutes place in glass of water. Next day hammer with instrument.

Test B. Place in water and freeze in freezing compartment. Melt ice - hammer.

Test C. Place specimens in boiling water for 1 minute. Chill - hammer.

Test D. Alternate wetting and drying until one specimen loosens from cavity.

The results will show that you can use the one specimen of Acrynamel Cement for all of these tests and the cement will still be intact. You will have to prepare new specimens of your regular cement due to failure.

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are strict laws to be interpreted and enforced. Shall the engineers 'compromise' when they are inspecting the blueprints for a schoolhouse, or a sewage treatment plant? Shall Tim Sullivan's men 'compromise' when they find a dirty restaurant, and be content with a half-dirty restaurant—dining room clean and the kitchen dirty? Should the vital statistics compromise by permitting a death from childbed fever to be reported as something else less damaging to the reputation of a careless physician?

"We were told by our visitor that modern psychology tells us that if we give in today the other fellow is going to be willing to give in tomorrow. Now I've just missed that chapter in the book. My own experience has been quite the contrary—and how! I hope that I may be willing to give in *when I am shown* that I am wrong or probably wrong, or convinced that the matter is not essential or pertinent to my functions here at the Board of Health. Until that time I hope I shall have the strength to stand for what is *right*, according to law and the best sanitary practice. The speaker said that each person must maintain his personal dignity and sense of worth, and we agree on that point, but we ask how that would be possible if we permitted ourselves to be tossed about in the administration of our duties like a leaf in the wind.

"It was reported that 'modern psychology' teaches that as a rule people who are good in one line are very poor in others—this being the principle of 'compensation.' Modern psychology holds exactly the opposite position, namely that persons good in one field are likely to be good in most others, though *better* in a particular line than in others, perhaps, and that persons who are dumb, lazy or inefficient in one thing are very prone to be the same in general. There are exceptions to this rule to be sure, but it is still the rule. The term 'compensation' is used correctly in quite a different sense. If I recognize that I have a weakness or a defect and undertake, because of this fault, to 'compensate' by doing better in another activity than I otherwise would, I shall then be practicing the principle of compensation. An example: an ardent churchman simply could not take a vocal part in the religious exercises—he could not sing, preach, read the lesson or pray—but as a business manager and treasurer he was of great service to the congregation and by his honest effort a source of inspiration to all. He was compensating for his inadequacy as a speaker. This is the correct use of the word 'compensation,' as used psychologically.

"Our exponent of 'modern psychology' said that one man's life is worth as much to himself and to society as was another's. Let's look at that statement in the light of common sense. A man of my acquaintance is under sentence of death from an incurable ailment. He is making a tremendous effort to stay alive so that he may finish a book which he is writing and so that he may provide for his family as long as possible. Life to him is utterly golden and he is saving and using to its utmost,

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every drop of it. Another man, apparently rather well situated, has thought so little of his life that he has tried on different occasions to commit suicide and recently was successful. Were the lives of these two men of equal value—even to themselves? We have in mind two men born on the same day; one has been a very valuable citizen, the other a bum. Shall both be regarded as equal in value to society? Shall both receive the same wages? Both are equal before the law as guaranteed by the Constitution, but there the equality ends. One is well-to-do, honored and respected; he has a great many precious privileges which he has gained by hard work and earnest effort. The other has always followed the rule, 'take it easy,' has nothing, and deserves less."

Like Doctor Rice, my patience is eroding somewhat thin with the preachments on "modern psychology." The id advocates, the Oedipus worriers, the inferiority complex explorers, the frustration fussers, the sex symbolizers, are making us all too introspective in an unhappy way. I observe that the people who never heard about these horrendous things seem to be (to use the jargon of modern psychology) better integrated personalities than those who are always taking their psychic pulse.

The idea of studying human motivations and behavior, to make one more understanding of the other fellow and himself, is a commendable study. One should remember, however, that large areas of psychology lie outside the scientific method. There are a good many quacks operating in the field with their big words and their terrifying imaginations. It is easy for us to confuse glibness for truth, and inflated sounds for fact. Don't believe everything that is spouted from the psychologic wells by writers or speakers.

—E.J.R.

The last paragraph in CONTRA-ANGLES on page 330 in the July issue should read: the fault is usually with ourselves: we did not make the effort to make ourselves plain. According to Irving Lee, it is not so important to know what *words* mean as to know what *he* meant. Saint Francis of Assisi had the same thought when he prayed, not so much to be understood as to understand.

—E.J.R.

Exogenous Obesity and Dental Anomaly

(*Continued from page* 361)

layer with a 703 fissure bur and access was gained to the supernumerary tooth bud which lay toward the lingual plate of the mandible.

4. Great care was exercised in the removal of the tooth not to traumatise the deciduous root and thus preserve vitality of the tooth.

5. The wound was dusted with sulphathiazole steraps and closed with 3 interrupted 000 catgut sutures.

6. A postoperative roentgenogram was taken (Fig. 2).

Postoperative Course Uneventful—The patient was checked routinely. Healing was uneventful, as shown in a second postoperative film (Fig. 3). The tooth was vital in its response to vitalometer and thermal tests.

Extraction of Incisor—Approximately six weeks after initial surgery the upper left peg-shaped lateral incisor was removed under local anesthetic to relieve the lock bite relationship that it caused and to allow for

(*Continued on page* 376

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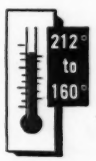

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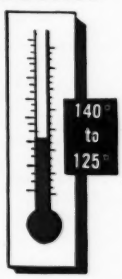

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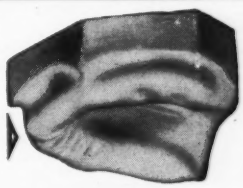

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See page 372 D.D.8

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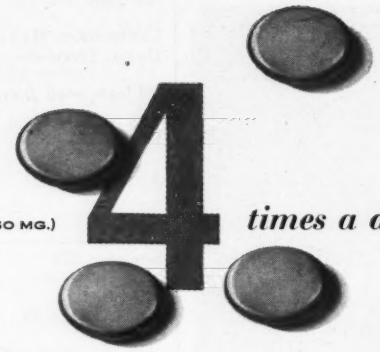

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(*Continued from page* 373)

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Comments

1. This case illustrates the advantages of close cooperation between the dentist and the pediatrician. The child in this case had lost 13 pounds when dental treatment was started and was markedly improved in appearance.

2. No conventional orthodontic treatment was undertaken. The removal of the crowded lateral incisor and the supernumerary tooth bud, and the fact that x-ray studies of the wrist and the sella turcica showed an essentially normal growth pattern would indicate that extensive orthodontic treatment would not be required.

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Advertising Index

American Consolidated Dental Co. 371
Ash Sons & Co., Inc., Claudius .. 365

Bosworth Co., Harry J. 372
Bristol-Myers Co. 337

Castle Co., Wilmot 338
Columbus Dental Mfg. Co. 3rd Cover
Continental Chemical Co. 338
Cook-Waite Laboratories, Inc. .. 340

Dental Perfection Co. 373
Dentists' Supply Co., The.. 4th Cover

Hotel Jefferson 372

Pfizer & Co., Chas. 376

Rocky Mountain Metal Products 375

Ticonium 374

Universal Dental Co. ..... 2nd Cover

White Dental Mfg. Co., The S. S. 339
Williams Gold Refining Co., Inc. 367
Wilmot Castle Co. 338

Young Dental Mfg. Co. 372